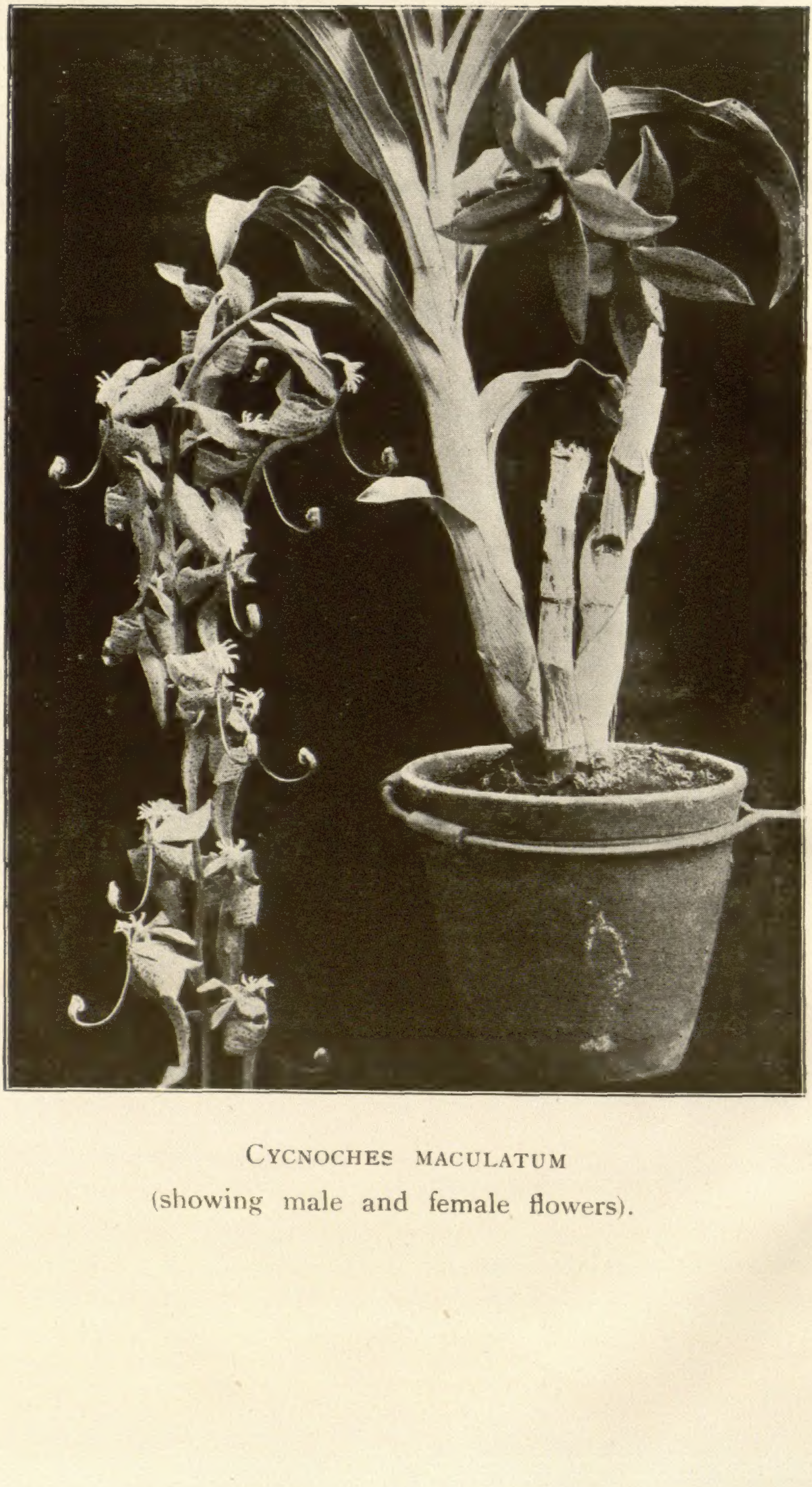

CYCNOCHES MACULATUM

(showing male and female flowers).

QK1
.062
1917
V.25
Ea 50

THE

ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S.

VOLUME XXV

1917

B1.75

Kew:

FRANK LESLIE & CO., 12 LAWN CRESCENT.

London Agents:

MARSHALL BROTHERS, LTD., 24-25 PATERNOSTER ROW, E.C. 4

[All rights reserved.]

TO

JOSEPH CHARLESWORTH, Esq.,

HEAD OF THE FIRM OF MESSRS. CHARLESWORTH AND CO.,

HAYWARDS HEATH

(FORMERLY OF HEATON, BRADFORD),

WHO FOR A PERIOD OF OVER TWENTY-FIVE YEARS

HAS BEEN

ONE OF OUR MOST ENTERPRISING AND SUCCESSFUL HYBRIDISTS,

THIS TWENTY-FIFTH VOLUME OF THE "ORCHID REVIEW"

IS MOST CORDIALLY DEDICATED.

Kew,

December, 1917.

The Orchid Review

VOL. XXV. JANUARY, 1917. No. 289.

OUR NOTE BOOK.

THE past year has again been overshadowed by the tragedy of a great war, and except in the department of the hybridist there is little of importance to review, and here, of course, the numerous seedlings that have flowered for the first time date from a period before the war. A good many have been recorded, and with those of earlier years that have now reached their full development, or such of them as have been exhibited, have kept our horticultural meetings full of interest. The regular fortnightly meetings of the Royal Horticultural Society, with the Chelsea and Holland House Shows, have been held as usual, but on a considerably reduced scale, and have been well supported by trade exhibitors, while a few amateur exhibits have appeared at most of the meetings. The meetings of the Manchester Orchid Society have been well supported, and with few exceptions there has been a considerable award list throughout the year, as may be seen by the monthly reports in our pages.

The Orchids certificated by the R.H.S. are about as numerous as last year, except for a decline in the number of First-class Certificates from twenty-eight to fourteen, these consisting of four Læliocattleyas, three Odontoglossums, two each of Sophrocattleya and Brassocatlælia, and one each of Cattleya, Odontioda, and Cypripedium. The Awards of Merit number sixty-one, while the new Preliminary Commendation, instituted for meritorious seedlings that have not reached the full development, has been awarded on fifteen occasions. Ten Cultural Commendations have been given, twice as many as last year, and it may be added that the circumstances have not been favourable for the bringing to the meetings of such specimens as are likely to secure this award. The Lindley Medal was awarded at the Holland House Show to a magnificent specimen of Epidendrum prismatocarpum from the collection of F. M. Ogilvie, Esq. It may also be added that the Society's Gold Medal has been awarded to five magnificent groups, two staged by Sir Jeremiah Colman, Bart., two by Messrs. Charlesworth & Co., and one by Messrs. Armstrong & Brown, the

occasions being the Chelsea and Holland House Shows, and the opening and closing meetings of the year.

Novelties have been practically restricted to hybrids, the only important exception being the flowering of Denbrobium Wollastonii, Ridl. (a species collected during the recent Wollaston expedition to Dutch New Guinea), in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle. Its history and characters are given at page 91 of our last volume. Novelties among hybrids have been numerous, especially in the popular Cattleya and Odontoglossum groups, with a few Cymbidiums and Cypripediums, these for the most part being seedlings resulting from combinations between select forms of earlier hybrids or re-crosses with the original species, on which lines steady progress is being made. The crossing of albinos is also being followed with great success. The merits of the various seedlings will be better judged when they reach their full development. An attempt to summarise them is quite out of the question, but among the more interesting we may mention Odontoglossum armainvillierense memoria J. Gurney Fowler, the first hybrid in which the characters of the distinct O. crispum solum are well developed, Vuylstekeara Colmaniana, from Miltonia Warscewiczii × Odontioda Bradshawiæ, and Wilsonara insignis, from Oncidioda Charlesworthii × Odontoglossum illustrissimum.

Orchidology suffered a great loss during in the year the death of Mr. J. Gurney Fowler, long Chairman of the R.H.S. Orchid Committee. Elizabeth Lady Lawrence, widow of the late Sir Trevor Lawrence, who shared her late husband's love for Orchids, and who had maintained the major part of the collection, also passed away, and thus two celebrated collections have been dispersed. The Manchester Orchid Society have to mourn the loss of Mr. Ziba A. Ward, one of its leading members. A few other collections have also been dispersed for various reasons.

Finally, there is an event that we must not overlook, namely, the R.H.S. Red Cross Sale, the proceeds of which were devoted to the alleviation of sufferings caused by the war. Among the articles presented for sale were a large number of Orchids and books devoted to Orchidology, which realised a handsome sum for two deserving charities. An account of the Sale may be found at pp. 198, 199 of our last volume.

It is interesting to hear of the development of Orchid culture in other lands. Some time ago we heard of an Orchid Society in Siam, and are awaiting further information, and now an old correspondent in Trinidad, who some time ago returned to a permanent post at Port of Spain, writes

that about a year and a half ago he assisted a few others in starting a Horticultural Club there, which is going very strong. Quarterly Shows are held, and Orchids, both imported and native, are largely exhibited. Among its members are Messrs. W. E. Broadway and R. O. Williams, both Kew men, and Mr. W. G. Freeman, formerly of the Imperial Institute. At a recent Show Mr. Potter obtained a first prize for a fine plant of Oncidium ampliatum majus, while for a fine specimen of Dendrobium superbiens, which was the finest specimen of its kind in the colony, he and another Orchid grower were bracketed "first." A few notes of these meetings from time to time would be acceptable.

ONCIDIUM HÆMATOCHILUM.—The figure and history of Oncidium hæmatochilum, Lindl., given at pp. 211, 212 of our last volume, has brought us a very interesting letter from Mr. T. J. Potter, Port of Spain, Trinidad, who, a good many years ago, discovered that this plant, long supposed to be a New Grenadan species, was a native of Trinidad, and further a natural hybrid between O. Lanceanum and O. luridum, with which it grows in the Cedros district. Mr. Potter succeeded in crossing the two species together, and raised a single seedling, which it was hoped would flower and remove the last element of doubt in the matter (*O.R.*, vii. p. 273). Mr. Potter now writes: "Unfortunately my young seedling perished before it flowered, so I have not been able yet to establish the fact by what is known in chemistry as a confirmatory test, but I have often seen the two varieties, *i.e.*, the one with a large sanguineous blotch on the lip and that with merely a splash or touch of crimson on the yellow lip." We greatly regret to hear of the fate of that seedling, not that we have any doubt of the correctness of Mr. Potter's interesting discovery, but because it would have shown what the primary hybrid is like, for in the light of subsequent discoveries there is the probability that recrossing with the parents also takes place. We hope that the experiment will be repeated. It may be interesting to add that some years ago Messrs. Hugh Low & Co. obtained an importation of O. Lanceanum in which three plants of hœmatochilum and examples of O. luridum were found (*O.R.*, vii. p. 293).—R.A.R.

SOPHROCATLÆLIA MYRA.—A promising hybrid, raised by Messrs Flory & Black, Slough, from Sophrocatlælia Althea × Læliocattleya Myra, of which the first flower has been sent to us for record. It has an expanse of five inches, and has light salmon-rose sepals, with rather more yellow in the petals, and the lip is two inches long, with orange-yellow disc, and the front lobe and margin of the side lobes carmine, with somewhat deeper veining. The flower most resembles the Cattleya type, but the influence of the Sophronitis can be traced. It should develop into a good thing.

AN ABNORMAL DEVELOPMENT OF PLEIONE.—Abnormal developments among Orchid flowers are common, and their significance, if not their actual cause, is well understood, but there is a case of the abnormal development of the pseudobulb in Pleione which remains a puzzle. It was recorded by Sir J. D. Hooker (*Fl. Brit. Ind.*, v. p. 840), where, in a note under Cœlogyna (Pleione) præcox, it is remarked: "A monstrous state bears imperfectly developed pseudobulbs crowned with a crinite tuft of narrow bulbils, each with two setæ." The remark was chiefly based upon a drawing preserved at Kew, itself a copy of a drawing in the Calcutta Herbarium, and labelled "Pleione, G. King, Sikkim, 6000 feet, Sept., 1874." There is also a sheet of dried specimens, collected by Griffith, four out of six of which have the curious character above described, while all are without flowers. In both cases Sir Joseph Hooker has written "C. præcox, monstrous state, but a comparison shows that they belong to C. humilis, now called Pleione humilis, both the leaves and pseudobulbs being quite distinct in the two species. There is also a dried specimen of Pleione Hookeriana showing the same condition, this being one of a series of specimens collected by Sir Joseph Hooker, in May, 1849, at Lachen, Sikkim, on rocks at 9000 feet (the others being in bloom). There are thus six abnormal specimens, from two different species. The tuft of setæ mentioned seems to replace the leaf, but the course of its development is obscure, though we suspect it to be a gall-growth, due to insect puncture. Observations on the spot would be acceptable.—R.A.R.

CYMBIDIUM CORONA.—Raised in the collection of G. Hamilton-Smith, Esq., Northside, Leigh Woods, Bristol, from C. Lowianum × Schlegelii. It bears much resemblance to the former, but the sepals and petals are slightly streaked with red, and the lip bears a broad crimson-brown zone within the margin, and some small spots inside and at the apex of the side lobes. Others are in bud, and Mr. Hamilton-Smith expects to see a great variation.

ODONTOGLOSSUM SHORTII.—Raised in the collection of G. Short, Esq., Liscard, Cheshire, from O. cirrhosum × tigrinum. The flower most resembles the former, but is prettily suffused with yellow at the tips and margin. Mr. Short remarks that the flower spike has a very graceful appearance, and the flowers are strongly scented, especially in the early morning.

ONCIDIODA CORA (O. Schlimii × C. Nœtzliana).—Raised by Messrs. J. & A. McBean, Cooksbridge, to whom we are indebted for flowers. The plant has the general character of the Oncidium parent, except that the flowers are strongly suffused with red. It is very distinct and graceful.

OBITUARY.

PROF. DANIEL OLIVER, F.R.S.—This distinguished botanist, who for twenty-five years was Keeper of the Herbarium and Library of the Royal Botanic Gardens, Kew, passed away in his sleep on Thursday, December 21st last, in his eight-sixth year. Professor Oliver, who was born at Newcastle-on-Tyne in 1830, commenced his botanical career by studying the British flora, and as early as 1847 was a writer on the plants of different geological formations. In 1858 he became assistant to Sir William Hooker, and some six years later, soon after his election as a Fellow of the Royal Society, was appointed Keeper and Librarian, a post which he held till his retirement in 1890. For some twenty-six years he was also Professor of Botany at University College, London, in which he succeeded Dr. Lindley. Prof. Oliver had an unrivalled knowledge of flowering plants, and a considerable knowledge of Orchids, though the latter were mostly handed over to Reichenbach, who for many years was a correspondent of Kew and an occasional visitor. We recall, however, that Oliver was the author of the remarkable Eria extinctoria (*Bot. Mag.*, t. 5910), which Lindley had referred to Dendrobium. Of a quiet and retiring disposition, Prof. Oliver gained the affection and esteem of all his colleagues by his zeal and kindliness. His services to botany were recognised by the award of the Royal Medal in 1884, and the Gold Medal of the Linnean Society in 1893. He was interred at the Friends Burial Ground, Isleworth, on December 24th.

AN ORCHID ROCKERY IN TRINIDAD.—An interesting experiment is being carried out in the Royal Botanic Garden, Port of Spain, Trinidad, as we learn from Mr. R. O. Williams, who left Kew a few months ago to take up an appointment there. Mr. Williams remarks: "The Orchid collection is fairly representative of the native species, but it is not very rich in the introduced ones. Just lately we have been felling a number of trees, and the logs from them we have utilised to form a kind of rockery, over which we have planted our spare Orchids, such as Dendrobium moschatum, Vanda teres, Aërides, Oncidiums, &c. Some of the logs had Orchids growing on them, so it was only necessary to lay these in position. The flat dells we are planting with such things as Adiantums, Selaginellas, Begonias, &c. It is quite a novelty, and the people here are getting interested. It should look rather nice when the Orchids begin to flower. The whole place is partially shaded with such trees as Theobroma bicolor and T. angustifolia (wild Cocoa), so that the Orchids should not suffer much in the dry season."

ALBINISM AND COLOUR IN ORCHIDS.

AT page 270 of the *Orchid Review* for November last it is recorded that Cattleya Mantinii × C. Hardyana, has produced the white sepelled and petalled C. Corona alba, and it is remarked that if the C. Hardyana used was *not* the albino form, then C. Corona alba would show how white forms may sometimes arise. In November, 1912, I stated: "My experience teaches me that whites can be built up from purple on the one side and yellow on the other," and I gave a number of examples. This experience has found echo in many other collections, and they have been recorded. Arising out of this case you open up (p. 257) a very interesting discussion upon Mendelism and its relation (or want of it) to hybrid Orchids, and more particularly the question as to why C. Dowiana aurea does not transmit the yellow of its sepals and petals to its immediate offspring.

Before dealing with the two points raised I should like to say that I have not found the study of the Mendelian theory of the slightest use when applied to Orchids. It may lead to a very interesting analysis, but such analysis is useful only in so far as the result provides material for building up something. It must be remembered that Mendelian analysis is *quantitative* as well as qualitative, and the analysis of sweet peas is a simple matter when compared with the analysis of complicated hybrid Orchids, of the first, second, and third generations. The aims of the hybridist are very high, for not only does he want flowers of a pre-determined colour; but he also wants healthy, vigorous, floriferous plants, with large flowers, of good shape and substance. The complications are enormous. One can scarcely conceive that it was originally intended that the Mendelian theory should cover all these complicated requirements, or be expected to analyse them quantitatively as well as qualitatively.

What, then, is there to guide the Hybridist in his effort to obtain a desired colour? The study is a fascinating one, but at the same time very difficult. Only very broad lines can be laid down, and these may not be absolutely reliable, for the range of one's personal experience is apt to be limited, and if one goes outside this, it is an unfortunate fact that records as to colour are not always reliable.

One ought not to be surprised that C. Mantinii × Hardyana has produced a flower with white sepals and petals; in fact, in the light of all the previous records, it would have been surprising if it had not done so. But that anyone should be able to say what the exact proportion of whites there will be to coloured is outside the range of practical experience. Many Hybridists can, from their experience, tell what the "chances" are

of certain colours turning up, but nothing in the way of certainty. Hybridising is largely a matter of chance. One does his best, but the result is on the lap of the gods. The further one gets away from the species the more likely one is to raise a large proportion of rubbish.

Although the combination of purple and yellow has a well-known tendency to make white, it would be very instructive to know why this result is postponed to the second generation. C. Dowiana aurea crossed with a purple species gives purple in the resulting hybrid, for example :—

C. D. aurea × C. labiata gives the purple C. Fabia.
„ „ „ C. Mendelii „ „ C. Octave-Doin.
„ „ „ C. Percivaliana „ „ C. Leda.
„ „ „ C. Warscewiczii (gigas) „ C. Hardyana.

Cross these resulting purple hybrids again with C. Dowiana aurea, and the "chances" are that some flowers with white sepals and petals will appear :—

C. D. aurea × C. Fabia gives many with white sepals and petals.
„ „ C. Hardyana „ „ „ „ „
„ „ C. Peetersii „ „ „ „ „
(Note.—The above are ¾ C. D. aurea).

C. Fabia × C. Rubens gives many with white sepals and petals.

C. Hardyana × C. Mantinii produced C. Corona alba.
(Note.—The above are ½ C. D. aurea).

If, however, the C. D. aurea is crossed with a yellow flower the "chances" are that the yellow of the sepals and petals will remain.

C. D. aurea × Lælia xanthina makes the yellow Læliocattleya Ophir.
„ × tenebrosa Walton Grange var. „ „ Lc. luminosa aurea.
„ „ Lc. Ophir do. „ „ Lc. Thyone.

And in the next generation—

Brassocattleya Leemaniæ × Lc. Ophir gives Bc. Baroness Schröder.

This postponement to the second generation of the combination of purple and yellow making towards white, may be due to the power which one colour has over another with which it is blended. If one wishes to obtain green for a water-colour drawing, it would not be sufficient to mix equal quantities of blue and yellow, for blue is a much more powerful pigment, and more yellow must be used.

This powerful influence of one colour over another is experienced in hybridising Orchids. Cochlioda Nœtzliana and, in a lesser degree, Sophronitis grandiflora are good examples of this. It may, therefore, well be that a single dose of yellow is not sufficient in all cases to produce whites, whilst in the other cases a second generation must be passed through. Before one can approximately guess at the colour which will be borne by the flowers on a hybrid plant, large experience of this "powerful

influence" or dominance of colour is necessary. This dominance seems to follow fairly consistent lines, though the evidence which I have is not sufficient to be able to make dogmatic assertions.

My experience is that the union of similar colours gives constant results. White × white produces white; red × red produces red, and yellow × yellow produces yellow, of all of which numerous examples could be given. But the union of different colours is erratic. Red × white produced cherry-red in the case of Sophronitis grandiflora × Cattleya labiata R. I. Measures' var., namely, Sophrocattleya Wellesleyæ Perfecta. Yellow × red produced red in the case of S. grandiflora × C. Dowiana aurea, namely, Sc. Doris; but when this was carried to the second generation red × yellow produced yellow, the example being C. Dowiana aurea × Sc. Doris, giving Sc. Dorea.

It will, of course, be understood that these colours refer only to the sepals and petals. And in reading these remarks there is a stipulation as to purity that I must make, namely:—

(*a*) The white must be white, and not a so-called white produced from a batch of otherwise coloured seedlings, unless it has proved itself a fixed white by having been bred from true. I raised a batch of seedlings, many of which are still called "alba" by other people, but there never was, so far as I am aware, a true alba, or even albino, in the whole batch.

(*b*) The red must be red. Sophronitis grandiflora is looked upon by some as bearing a red flower, but the colour varies in different plants, from a brick red, through varying shades to purple red. This purple comes out, and is even intensified, in some of the Sophrocattleya hybrids. I do not include these purples in "red."

(*c*) The yellow must be yellow. Cattleya Dowiana is sometimes confused with C. D. aurea. The one will not give the same result as the other. The yellow Lælia Cowanii and L. xanthina seem more likely to give satisfactory results as regards colour.

From the examples given it will be seen that my experience is so limited as to be no more than a basis for hope that the right track has been struck. Others may have examples which will either confirm or contradict my experience. I may conclude with the remarks that after twenty years' deep interest in, and latterly very careful study of colour in relation to Orchids, my conclusion is, "There is no royal road to success." With all the care that one can give, and when all is done in the way of careful selection, the best that one can hope for in the way of "success" is a small percentage. But the rejoicing over the successes greatly outweigh the disappointments. Nature is fickle, and Mendelism will never coerce her in Orchids.

RICHD. G. THWAITES.

Streatham.

ANGRÆCUM BILOBUM.

THE genus Angræcum contains a number of very distinct and graceful species, characterised for the most part by the pure white flowers and the elongated spur of the lip. A form of A. bilobum is shown in the annexed figure, which represents a plant in the collection of J. J. Neale, Esq., of Penarth, and is reproduced from a photograph taken in September last by Miss Muriel Neale. The plant is said to have been sent from British East Africa or Uganda, and is grown in a fairly warm house. A. bilobum originally flowered in the collection of Messrs. Loddiges, Hackney, in 1840, and was described and afterwards figured by Lindley (*Bot. Reg.*, 1840, Misc. p. 69; 1841, t. 35). The original plant came from Cape Coast Castle, but the species

Fig. 1. ANGRÆCUM BILOBUM.

has since been collected in other localities in West Africa. A. apiculatum, Hook., *Bot. Mag.*, t. 4159, is regarded as a form of the same. Some forty years later a plant sent from Zanzibar by Sir John Kirk was described as A. bilobum, var. Kirkii, Rchb. f., but this is characterised by the very narrow leaves and few-flowered scapes, as may be seen in the *Orchid Album*, figure (iv. t. 162). It is now known as A. Kirkii, Rolfe. The present one is nearer to the original A. bilobum, and represents an interesting extension of its geographical area. There are other western species that extend through the forest region to Uganda, and among them the remarkable A. infundibulare, Lindl. A. bilobum is rather rare in cultivation at the

present time, and it may be added that there are several nearly allied species which are only known from dried specimens or descriptions. Some of these are natives of Eastern Africa.

ANGRÆCUM SANDERIANUM (fig. 2) is another very graceful species, which is characterised by its long, compact racemes of pure white flowers, and the rather shorter spur of the lip. It is a native of the Comoro Islands, where it was discovered by M. Leon Humblot, who sent it to Messrs. Sander, St. Albans, where it flowered in 1888, and was described by Reichenbach

Fig. 2. ANGRÆCUM SANDERIANUM.

(*Gard. Chron.*, 1888, i. p. 168). It is probably the geographical representative of the Madagascar A. modestum, Hook. f., to which it bears a considerable resemblance. The plant figured flowered in the collection of G. Shorland Ball, Esq., Wilmslow, and was grown in a small pan, suspended from the roof of the Warm house. The leaves bear a certain resemblance to those of A. bilobum, but the inflorescence and flowers are very different. The plant is evidently very vigorous, and the numerous strong aërial roots will be noticed. It is a very graceful plant, and deserving of more extended culture.

ANGRÆCUM HYALOIDES (fig. 3) is a very dwarf and floriferous Madagascar species, whose general character is well shown in the figure, which represents a plant that flowered in the collection of the late Frau Ida Brandt, Zurich. The species was introduced by Messrs. James Veitch & Sons, it is believed through Mr. C. Curtis, and was described in 1880 (Rchb. f. in *Gard. Chron.*, 1880, i. p. 264). The photograph, it will be noticed, was taken from above. The leaves are broad, and the short scapes bear numerous small white flowers, with a rather short spur. The plant was originally compared with a miniature A. citratum, and it is interesting

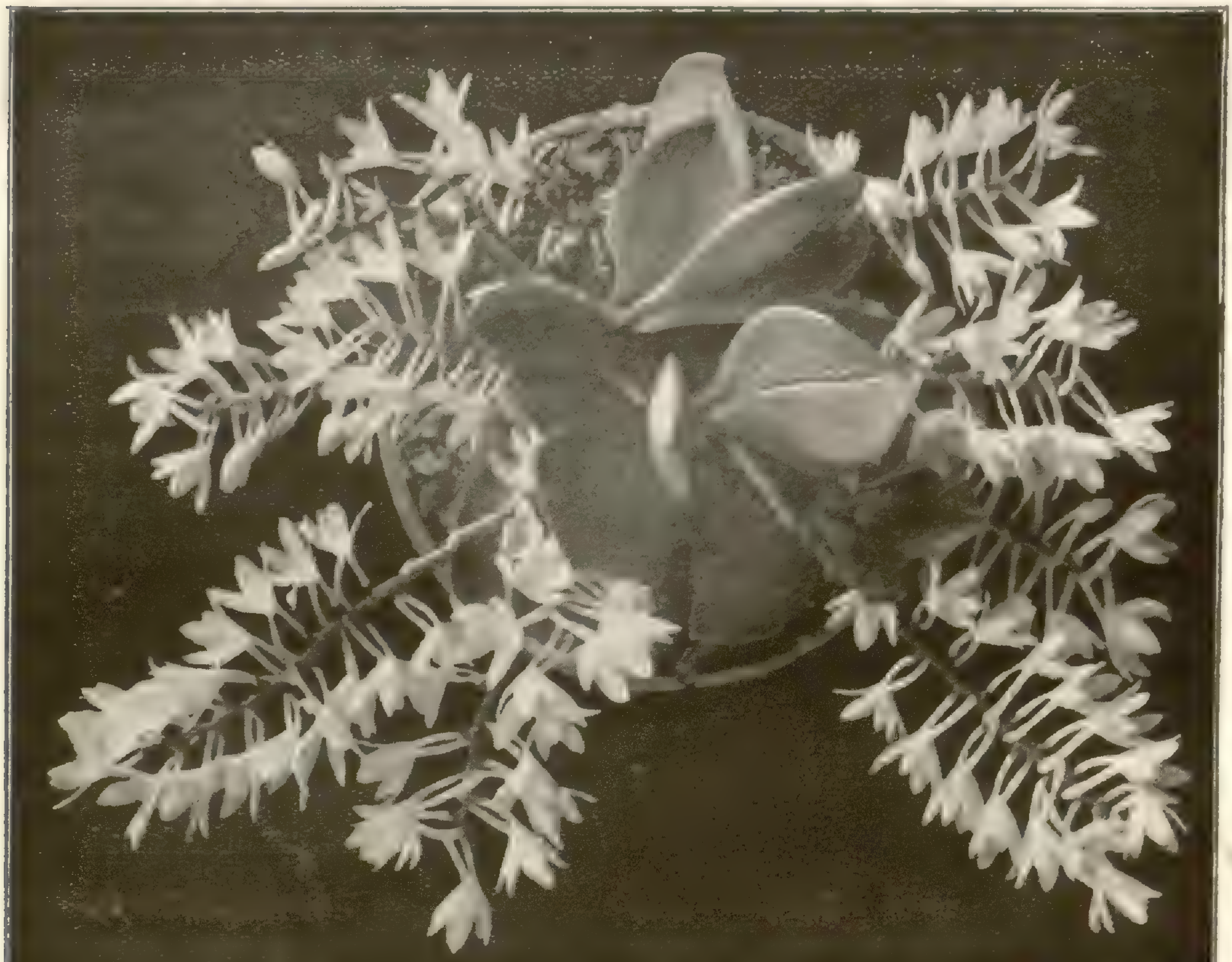

Fig. 3. ANGRÆCUM HYALOIDES.

to note that Messrs. Hugh Low & Co., who afterwards imported it and a lot of A. citratum, found in the importation a plant combining the character of the two species, which was described as A. primulinum, Rolfe (*Gard. Chron.*, 1890, i. p. 388). This fact affords a clue to the habitat of A. hyaloides, which has now become very rare in cultivation.

The species of Angræcum have become rather numerous, and a good many of them have appeared in cultivation at different times, but there must be an equal number that are only known from dried specimens. They vary greatly in habit, some having dwarf and others elongated, climbing

stems, while the foliage is even more variable, and a few of them are quite leafless. The flowers are very diverse in shape and size, and the colour is mostly white, but in a few cases light green, yellow and buff.

CATTLEYA BOWRINGIANA AND ITS HYBRIDS.

IN your article on Hybrids of Cattleya Bowringiana (*O.R.*, xxiv. pp. 237-239) you do not include the hybrids with the short-bulbed Epidendrums. Of these I have two. C. Bowringiana × E. advena (Godseffianum) is called Epicattleya adboa, and the flower in shape is like the Epidendrum parent, but the segments broadened out, and the colour most like the Cattleya. It has an elongated barrel-shaped stem. C. Bowringiana × E. plicatum, is called Ec. plicaboa, and is similar in the stem, and blooms every year, producing long scapes of handsome, magenta-crimson flowers. C. Bowringiana × Lælia Perrinii, called Læliocattleya boarina, makes a good floriferous hybrid, in some cases favouring the parent, in others more like the Cattleya. Among secondary hybrids I have Cattleya melodboa (C. Bowringiana × Claesiana); C. ammeboa (Bowringiana × interglossa); C. Lodillboa (Bowringiana × Daphne); Læliocattleya leobroboa (C. Bowringiana × Lc. Issy); Lc. crismoloboa (C. Bowringiana × Lc. leucoglossa); Lc. purleoboa (C. Bowringiana × Lc. elegans, and others, supposed to be C. Bowringiana × mollis, &c., but the labels are lost and the parentage too complicated to trace from the flowers.

As to the names, I invented a system of naming these complicated hybrids so as to recognise them for hybridising purposes without too great a strain on the memory. The system consists in representing each species by one syllable or part of a syllable of its name, and combining them, adding a vowel if needed for euphony. Thus Bowringiana is represented by boa, and among primary hybrids we get Ec. adboa with E. advena; Ec. plicaboa with E. plicatum, and Lc. boarina with L. Perrinii, while among secondary hybrids it is also the specific composition that is represented, and this may be expressed as follows:—

C. MELODBOA (Bowringiana × Claesiana), representing C. intermedia, Loddigesii and Bowringiana.

C. AMMEBOA (Bowringiana × interglossa), representing amethystoglossa, intermedia and Bowringiana.

C. LODILBOA (Bowringiana × Daphne), representing C. Loddigesii, Schilleriana and Bowringiana.

LC. LEOBROBOA (C. Bowringiana × Lc. Issy), representing L. tenebrosa, C. Leopoldii and C. Bowringiana.

Lc. CRISMOLOBOA (C. Bowringiana × Lc. leucoglossa), representing L. crispa, C. Mossiæ, Loddigesii and Bowringiana.

Lc. PURLEOBOA (C. Bowringiana × Lc. elegans), representing L. purpurata, C. Leopoldii and C. Bowringiana.

The system has the advantage of sidestepping all rules of priority for hybrids, and is equivalent to a universally recognisable "vernacular" name for each hybrid, while at the same time the hybrid retains its commemorative or other name (if it has one) for use on all occasions of solemn botanical pomp and ceremony.

T. L. MEAD.

Oviedo, Florida.

CALENDAR OF OPERATIONS FOR JANUARY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE advent of a new year brings its renewed cycle of cultural routine, and both the enthusiastic amateur and the professional grower will be making the necessary preparations. Things are abnormal at present, owing to the existing world strife, but we may hope for an early return to peaceful conditions, which, I am convinced, will give a great impetus to all phases of horticulture, and bring many accessions to the ranks of Orchid culture. An enormous change has taken place in the popularity of Orchids during the last quarter of a century, as the pages of the *Orchid Review* can testify, and new accessions to the cult are always welcomed, for it is from such beginnings that our largest collections of to-day have developed. The *Review* has contributed largely to this growing popularity, both in stimulating experiment and in recording so thoroughly the course of events. Its influence has always been on the side of progress. This little appreciation from an old reader is, I hope, permissible on the *Review* commencing its twenty-fifth volume. May its influence continue to increase.

For the benefit of new readers, amateurs and beginners in Orchid culture in particular, I will give the most suitable temperatures for the different departments. They are as follows:—

Cool house: Day, 50° to 55°; with sun, 60°; night, 50°.

Intermediate house: Day, 60° to 65°; with sun, 66°; night, 57° to 60°.

Cattleya and Mexican house: Day, 60° to 65°; with sun, 68°; night, 58°.

East Indian house: day, 65° to 70°; with sun, 75°; night, 65°.

These figures are only given as a guide, as no harm will accrue from slight variations either way, but severe fluctuations may be the means of much harm.

In large establishments there are often houses that are kept at temperatures a little higher, or lower than the figures given, hence the

greater advantages enjoyed by the large grower. The small grower in many cases also suffers from the smallness of his houses, as small houses fluctuate more quickly than those of larger size.

The work of the present month consists chiefly in maintaining the proper temperatures, providing suitable atmospheric conditions, and the cleansing of the plants and houses, so that when the growing season comes round everything can start without any impediment. For the present, everything should be kept as quiet as possible, no attempt being made to push plants into growth or flower, as premature growth is weak and unsatisfactory.

VENTILATION.—At this season some discretion must be used in the admission of fresh air, and this must be done by some means every day, as a stagnant atmosphere is most injurious. The observant cultivator will soon find the difference between a badly ventilated and a judiciously ventilated house, not only by his own personal comfort, but in the health and vigour of his plants. It is astonishing what can be accomplished by opening a single ventilator for the space of half an hour or so during the day, if only one or two inches. Of course the different houses vary considerably in their requirements, so no definite rule can be laid down, and draughts must be avoided at all costs. To those who do not succeed exactly as they would like, I would urge a closer study of the atmospheric conditions in their houses.

ATMOSPHERIC MOISTURE is another essential that must be regulated according to the outside conditions, and the amount of heat in the respective houses. Should the outside conditions be clear or bright, or should it have been necessary to use much fire heat, owing to frost, more moisture is required than when the outside atmosphere is heavily charged with moisture. The great thing to avoid at all times is a heavily-saturated atmosphere when the temperature is low, as much harm will accrue. It should be remembered that the health of the plants grown under the artificial conditions of our houses depends entirely on the conditions provided for them.

WATERING.—At this season the greatest care must be taken in watering the plants. Many will be at rest, and these only require sufficient water to keep them from shrivelling; others will be growing, and require water whenever they become dry. A recognition of this difference is one of the great secrets of successful cultivation. It is a simple matter to pour water into a plant, but it is another matter to get the compost dry at this season when evaporation is slow. Too much water is as bad as too little, both extremes being dangerous, though the second is the lesser of two evils. If the same consideration was given to the application of water as is given in making up the compost, much better results would be obtained. A safe

rule is to keep the plants rather on the dry side until growth or root action commences, trusting principally to the humidity in the atmosphere to bring them safely through the winter months.

ODONTOGLOSSUMS will be in all stages; some in full growth, others just starting, whilst some will be pushing up their flower spikes. The latter should be carefully and neatly staked as they attain sufficient length. They are best placed by themselves, so that they can be examined from time to time for slugs, which devour the spikes and do irreparable harm. Small or weakly plants should have their spikes removed as soon as they are observed, as these plants should not be allowed to bloom until they get fairly strong. Until then one or two flowers are sufficient to show their merits. I do not advocate potting during the present month, but should any that require it reach the desired stage, namely, the pushing of new roots, there is no reason why it should not be done, using a clean fibrous compost and sphagnum moss in equal parts. Newly potted plants at this season must be watered with extreme care.

DECIDUOUS CALANTHES.—As these useful Orchids pass out of flower they should be placed in a light position to rest. Immediately the spikes are cut water should be entirely withheld from the roots, so that the pseudobulbs may thoroughly mature. Resting is of the greatest importance, as their future welfare depends entirely upon it. The late-flowering section must be treated in precisely the same manner as C. vestita was before opening its flowers.

CATTLEYAS AND ALLIES.—In a representative collection there is always something in bloom, either species or hybrid, but the present month is the quietest in the whole year for these beautiful plants. Examples of Cattleya Percivaliana and C. Trianæ, with some of their hybrids, will develop their flowers, and will be most acceptable. Some of the hybrids of Brassavola Digbyana are nearly always with us, and if only one or two are in bloom they are always welcome.

LÆLIA ANCEPS and its varieties are now flowering freely, and make a most attractive display. They are useful for any decorative work, and are most acceptable at this season. After flowering, the plants should be kept moderately dry until new roots are observed to be pushing from the rhizome, when any necessary repotting may be undertaken.

MILTONIAS of the vexillaria section will now be growing strongly, and may have water whenever they require it, taking care that the compost becomes dry between each operation. Watch carefully for thrip, which is very partial to these plants, especially if grown too warm, and should it once get a foothold it is most difficult to eradicate. Fumigating at intervals as a preventive is the safest and surest means to adopt. The species and hybrids of the Brazilian section which include such well-known

kinds as M. spectabilis and its variety Moreliana, should be examined to see if any of the plants are in need of more pot room, as the present is the best season to repot them. The whole of these Miltonias thrive satisfactorily in a shady part of the Intermediate house, and appreciate light at this season, but during the summer months direct sunshine is detrimental to their growth. For sometime after repotting water must be given with great care, as the young growths are liable to decay if too much is given until they are thoroughly re-established. A compost of equal portions of osmunda and AI fibres, with a little sphagnum moss, answers their requirements. This material should be placed firmly around the rhizome of the plants.

CŒLOGYNE CRISTATA and its varieties are now pushing up their flower spikes at the cool end of the Intermediate house, and must have water applied to them whenever they become dry. C. Mooreana is a valuable addition which flowers at this season, and, when better known, should find a place in most collections. It is easy to grow if treated much in the same way as C. cristata, but prefers the warm end of the Intermediate house. Like many of the other species of this genus it likes a moderately-shaded position. C. pandurata, C. Massangeana, and others must have water according to their condition, those at rest requiring little, whilst those pushing up flower spikes or in growth must have water whenever the compost becomes dry.

DENDROBIUMS.—Plants that are resting in a house that is kept at a temperature of about 55° should not be allowed to shrivel for want of water, just sufficient should be given to keep them plump. If early flowers are required, those plants which have their flower buds well advanced may be placed in a light position in slightly warmer quarters, but no undue forcing should be attempted, or the plants will rush into premature growth and the whole crop of flowers may be lost.

ZYGOPETALUMS.—Such plants as *Z.* Mackayi, *Z.* crinitum, and others of this section should be repotted, if necessary, as they pass out of flower. The roots of the different species and hybrids vary to a considerable extent, some making large succulent roots, others of a thinner and more wiry nature. Those with large Cattleya-like roots may have larger receptacles than the others. The strong growers may also have a more substantial material to root in. Fibrous loam, osmunda fibre and sphagnum moss, in equal proportions, cut up according to the size of the plants and well mixed together, will form a suitable compost. In the more delicate growers, the loam fibre may be reduced.

GENERAL REMARKS.—A good supply of the necessary potting material should be acquired and prepared as far as possible, so that when the busy potting season comes round everything is at hand.

CATTLEYA LAWRENCEANA IN AUSTRALIA.

THE annexed figure represents a fine specimen of Cattleya Lawrenceana grown in the collection of E. Baxter Cox, Esq., of Adelaide, South Australia, and is reproduced from a photograph kindly sent through Messrs. Sander & Sons, St. Albans. It consists of two plants potted together, and Mr. Cox remarks that there are thirteen leads, sixty-five bulbs, and nine spikes, the two best with five flowers each. At the time the photograph was taken two spikes of four buds each had only just pushed through their sheaf. Owing to the compost having got into bad condition, the plant was

Fig. 4. CATTLEYA LAWRENCEANA.

potted in midwinter, when new roots were pushing out, and just before the spikes started, this giving a check, so that four of the sheaths did not push their spikes at all, which reduced the quantity of bloom. C. Lawrenceana is a native of Mt. Roraima, in British Guiana, where it was discovered by Sir Robert Schomburgk over seventy years ago, though he mistook it for C. Mossiæ, and it was only when re-discovered by Siedel some forty years later, when collecting for Messrs. Sander, that its distinctness was recognised. Soon afterwards it was described by Reichenbach, being dedicated to Sir Trevor Lawrence, President of the Royal Horticultural Society. It is a very handsome and floriferous species.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the Royal Horticultural Hall on November 21st, 1916, and brought together a fair display of Orchids, the awards consisting of four Awards of Merit and five medals.

Orchid Committee present:—Sir Jeremiah Colman, Bart., (in the Chair), J. O'Brien (hon. sec.), W. Bolton, S. W. Flory, W. H. White, Arthur Dye, J. E. Shill, C. H. Curtis, W. H. Hatcher, J. Cypher, J. Charlesworth, Walter Cobb, A. McBean, Pantia Ralli, F. J. Hanbury, R. G. Thwaites, J. Wilson Potter, Stuart H. Low, and R. A. Rolfe.

AWARDS OF MERIT.

CATTLEYA CLAESIANA ALBA ORCHIDHURST VAR. (Loddigesii alba × intermedia alba).—A charming albino, having well-shaped flowers of moderate size, and the disc of the lip light yellow. Exhibited by Messrs. Armstrong & Brown.

CATTLEYA MONASTIR (Freya var. Mrs. Fred. Sassoon × Dowiana aurea).—A well-shaped and richly-coloured hybrid, having rose-purple sepals and petals, and a broad, open, ruby-red lip, lined with yellow at the base. Exhibited by Messrs. Armstrong & Brown.

CYPRIPEDIUM MADAME ALBERT FEVRIER CHARDWAR VAR. (Germaine Opoix × insigne Harefield Hall var.).—A handsomely blotched hybrid, most like the former in general character, and having a circular, yellowish green dorsal sepal, margined with white, and with rows of claret red spots, the petals tinged with mahogany red and spotted with purple-brown below, and the lip mahogany red in front. Exhibited by G. F. Moore, Esq., Bourton-on-the Water (gr. Mr. W. H. Page).

LÆLIOCATTLEYA SOULANGE BRYNDIR VAR. (Lc. Lustre × C. Dowiana aurea).—A handsome variety, most like the former in general shape, and having broad, rose-coloured sepals and petals, with an underlying shade of yellow, and a purple-crimson lip with yellow veining on the basal half. Exhibited by Messrs. Flory & Black.

GENERAL EXHIBITS.

G. Hamilton Smith, Esq., Leigh Woods, Bristol (gr. Mr. Coningsby), showed Cymbidium Castor var. aureum (Woodhamsianum × insigne), having large, light cream yellow sepals and petals, tinged with rose, and a zone of red-purple blotches on the lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including Cattleya Saturn alba and other white Cattleyas, Sophrocattleya Cassiope (Sc. Chamberlainii × C. Chamberlainiana), with well-shaped rosy flowers, Cypripedium Daisy Barclay, Læliocattleya Aries (Lc. Henry-

Greenwood × C. Warscewiczii), Brassocattleya Leemaniæ, and several promising seedling Odontoglossums (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, in which Læliocattleyas, chiefly consisting of Lc. Salonica, Britannia, St. Gothard, and Serbia made a fine display, with Lc. Mita (C. Fabia × Lc. Golden-Oriole), a promising bronzy orange hybrid with ruby red lip, Brassocattleya Thompsonii (Bc. Veitchii × C. Gaskelliana alba), having white flowers with a yellow disc to the lip, two distinct and pretty forms of Odontioda Royal-Gem, and others (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a choice group, in which we noted a fine Læliocattleya Queen-Alexandra (Lc. Bella × C. Trianæ), Lc. Thyone, Cattleya Brenda (Gaskelliana alba × Dusseldorfii Undine), C. Valeria (Rhoda × Portia), C. Fabiata, a richly-coloured Sophrocattleya Doris, two good Dendrobium Dearei, Cypripedium Germaine Opoix, Oncidioda Cora (Cochlioda Nœtzliana × Oncidium Schlimii), an interesting hybrid most resembling the latter parent in general character but the flowers red, and other good things (Silver Flora Medal).

Messrs. Cypher & Sons, Cheltenham, staged a good group of well-bloomed Cypripediums, including C. Dreadnought, C. Moonbeam, C. Thalia Messrs. Francis Wellesley, C. Gaston Bultel, and other Fairrieanum crosses (Silver Banksian Medal).

Messrs. Sander & Sons,, showed a good group, in which hybrid Cattleyas were the leading feature, these including good forms of C. Fabia and var. alba, C. Katie, C. Prince-John with pale yellow sepals and petals and much yellow on the lip, the rare C. Walkeriana, the richly-coloured Vuylstekeara insigne (Cochlioda Noetzliana × Odontonia Lairesseæ), Eria rhynchostyloides, Restrepia striata, and Bulbophyllum miram (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent a good form of Sophrocattleya Chamberlainii, and Læliocattleya Monastir (Lc. callistoglossa × C. Pittiana), the flower being of good shape, with bronzy yellow sepals and petals, and the front of the lip cherry red.

Mr. C. F. Walters, Balcombe, showed Læliocattleya Harclon (C. Harrisoniana × Lc. Clonia), a bright rose-coloured flower, and Cattleya Lady-Crossley (intermedia alba × Gaskelliana alba).

The meeting held on December 6th was distinguished by the award of a Gold Medal to a magnificent group staged by Messrs. Armstrong & Brown, while three other medals, three Awards of Merit, and two Preliminary Commendations were also given.

Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (Hon. Sec.), W. Bolton, S. W. Flory, C. J. Lucas,

W. H. White, Arthur Dye, C. H. Curtis, J. E. Shill, J. Cypher, Walter Cobb, T. Armstrong, Pantia Ralli, Sir Harry J. Veitch, R. Brooman White, F. J. Hanbury, and R. A. Rolfe.

FIRST-CLASS CERTIFICATE.

BRASSOCATLÆLIA THE BARONESS ORCHIDHURST VAR. (Bc. Leemaniæ × Lc. Ophir).—A magnificent variety, having very broad citron-yellow sepals and petals of great substance, with a paler, strongly undulate lip, lined below with light rose. Exhibited by Messrs. Armstrong & Brown.

AWARDS OF MERIT.

CYPRIPEDIUM JOHN CYPHER (Fairrieanum × aureum Surprise).—A fine variety, bearing light yellow flowers of good shape, the dorsal sepal lined with green and margined with white, and the petals and lip tinged with rose. Exhibited by R. Windsor Rickards, Esq.

CYPRIPEDIUM CHARDWAR (Hera Euryades × ?).—A fine hybrid, having a large white dorsal sepal, with green base and numerous chocolate blotches, and the petals and lip suffused and marked with purple brown on a honey-yellow ground. Exhibited by R. Windsor Rickards, Esq.

LÆLIOCATTLEYA LORNA (Lc. Wrigleyi × C. labiata).—A striking hybrid, in which the characters of Lælia anceps are well marked, the scape being somewhat elongated, and the sepals and petals rosy lilac in colour, with the expanded lip purple in front. Exhibited by Messrs. Flory & Black.

PRELIMINARY COMMENDATIONS.

ODONTIODA MADELINE VAR. BLACK PRINCE (Oda. Charlesworthii × Odm. crispum).—A promising variety, the flower being of good shape, and the colour dark ruby red, somewhat lighter at the base of the segments. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM DORIS ORCHIDHURST VAR. (Ossulstonii × crispum).—A finely-shaped flower, heavily blotched with claret-red on the lower two-thirds of the segments, the ground colour and margin being white. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

R. Windsor Rickards, Esq., Usk Priory, Monmouth, staged a group of about three-dozen well-grown Cypripediums, to which a Silver Flora Medal was awarded. It contained C. Arthurianum Usk Priory var., C. Swallow-tail var. Bassano, a very dark Fairrieanum hybrid, C. Lord-Wolmer Westonbirt var., C. Pyramus splendens, C. Curlew (Beryl × Fairrieanum), C. Mrs. Rickards, C. Lucifer, Ernest Read, Cyclops, and others.

Dr. Miguel Lacroze, Bryndir, Roehampton, sent Læliocattleya Serbia Bryndir var., a very handsome form.

Ernest Mocatta, Esq., Woburn Place, Addlestone, showed the bright yellow Læliocattleya Thyone var. Goldone.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E.

Shill), sent three promising hybrids raised in the collection, Sophrocattleya Delta (C. Fabia × Sc. Doris), Cypripedium Mrs. de Laszlo (Beeckmanii × Germaine Opoix), most like the former, and having an emerald green, heavily blotched dorsal sepal with white margin, and richly-coloured sepals and petals, and C. Vesuvius (fulshawense × Beeckmanii).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a magnificent group of Orchids, with a frontage of about forty feet, to which a Gold Medal was awarded. The leading feature was a series of over sixty plants of the beautiful Cattleya Maggie-Raphael var. alba, having white sepals and petals and a coloured lip, a few of them being exceptionally fine. We noted also several examples of C. Moira, C. Venus Queen of Yellows, Brassocattleya Mars, a pretty hybrid between Cypripedium glaucophyllum and × Curtisii, C. Bassano × Fairrieanum, C. Niobe, and many other good things, with a number of promising seedling Odontiodas and Odontoglossums in the centre. The plants were well grown and very tastefully arranged, forming an altogether excellent exhibit.

(To be concluded.)

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on November 26th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, W. Gilden. A. R. Handley, A. Hanmer, F. Houghton, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Odontoglossum Mars (parentage unknown), a flower of good form and shape, four inches across, of solid deep claret colour with white margin (a Silver Medal was also awarded), and O. crispum xanthotes Rayon d'Or, pure white, well marked with spots of primrose yellow, and the lip almost all yellow; from Dr. Craven Moore.

Cypripedium Actæus ashlandense No. 3 (Lord Ossulston × Leeanum Clinkaberryanum), a well-set flower, with large white dorsal, and the green base faintly spotted; from P. Smith, Esq.

AWARDS OF MERIT.

Cattleya Alcimedia Snowstorm (labiata alba × Gaskelliana alba); C. Moira var. rubra (Fabia × Mantinii); Brassocattleya Nestor var. Brilliant (Bc. Maroniæ × C. labiata), and Odontoglossum Lambeauianum var. Torchlight; from R. Ashworth, Esq.

Cypripedium Britannia and Sophrocattleya Faboris (C. Fabia × Sc. Doris); from P. Smith, Esq.

Cypripedium Conyngham (Alcibiades × Mrs. Mostyn); from Dr. Craven Moore.

Cypripedium Tracyanum Carter Place var. (Leeanum Clinkaberryanum × aureum); from T. Worsley, Esq.

Læliocattleya Carmencita Houghton's var. (Lc. luminosa × C. Dowiana aurea); from F. Houghton, Esq.

AWARD OF APPRECIATION.

Odontoglossum percultum var. Dingle Gem and O. Jasper var. The Gem; from F. Houghton, Esq.

CULTURAL CERTIFICATE.

To Mr. T. Wood, for Cypripedium Fairrieanum.

OTHER EXHIBITS.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport), for a fine group, including many choice things.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a fine general group, in which choice Cypripediums were well represented.

Interesting exhibits were staged by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. Tom Arran); F. Houghton, Esq., Appleton (gr. Mr. Maddock); P. Smith, Esq, (gr. Mr. E. W. Thompson); Tom Worsley Esq., Haslingden (gr. Mr. T. Wood); Messrs. Sander & Sons, St. Albans; Messrs. Keeling & Sons, Bradford; Messrs. Charlesworth & Co., Haywards Heath, and Messrs. Hassall & Co., Southgate, several of which appear in the above list of awards.

At the meeting held on December 7th the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, A. R. Handley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorpe, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATE.

Cymbidium Doris magnificum (insigne × Tracyanum), with flowers of good size, beautifully veined with reddish brown; Odontoglossum crispum Cramore, a full round flower, of almost solid port wine colour with white margin, and Odontonia Magali-Sander var. xanthotes (Miltonia Warscewiczii xanthina × Odm. armainvillierense xanthotes); from Dr. Craven Moore.

AWARDS OF MERIT. [Craven Moore.

Cypripedium Arthurianum Usk Priory var. (insigne Harefield Hall var. × Fairrieanum), C. Cavalier Usk Priory var. (Hera Euryades × Earl of Tankerville), C. Nydia Usk Priory var., C. John Cypher (Antinous × Leeanum), C. Chardwar, and C. Mrs. Rickards (Earl Tankerville × alportense); from R. Windsor Rickards, Esq.

Odontoglossum ardentissimum Marjorie, O. crispum Princess Victoria Louise, O. crispum Etna, and Odontioda Diana Conyngham var; from Dr. Craven Moore.

Læliocattleya luminosa aurea var. Canary, and Cypripedium Leeanum Goliath (L. Gratrixiæ × Perfecta); from R. Ashworth, Esq.

Sophrocattleya Fabinippe (C. Fabia × Scl. Manippe); from Philip Smith, Esq.

Cypripedium Baron Harefield (insigne Harefield Hall var. × The Baron), and C. Christopher var. bisepalum; from Messrs. Cypher & Sons.

OTHER EXHIBITS.

A Gold Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a magnificent group of choice hybrid Cypripediums, the forms being numerous and in excellent condition.

A Silver-gilt Medal was awarded to R. Windsor Rickards, Usk Priory, Monmouthshire, for a fine group of well-grown hybrid Cypripediums, several of them further receiving certificates.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a group of well-grown Cypripediums, including several attractive hybrids of C. Fairrieanum.

Interesting exhibits were also staged by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. Tom Arran); R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson) (including Odontioda Cookso-Elsie); Col. Sir J. Rutherford, M.P., Blackburn (gr. Mr. J. Lupton); Messrs. Charlesworth & Co., Haywards Heath; Messrs. J. & A. McBean, Cooksbridge; Messrs. Sander & Sons, St. Albans; Messrs. Keeling & Sons, Bradford, and Mr. W. Shackleton, Bradford, several of which appear in the above list of awards.

ORCHID NOTES AND NEWS.

TWO Meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Victoria Street, Westminster, during January, on the 16th and 30th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. These two meetings complete the Society's year.

It will be remembered that the meetings of the Society were held at the Drill Hall for a number of years before the Royal Horticultural Hall was built. The reason for the change is announced by the Rev. W. Wilks, Secretary, as follows: "The Royal Horticultural Hall having been offered by the Council to the War Office for military purposes, and having been accepted for the use of the Australian Imperial Forces, the Government, recognising the national importance of the work done by the Society, have been pleased to place at its disposal the Drill Hall of the London Scottish

for such period as the Vincent Square premises remain at the disposal of the War Office. The Society's offices and library remain at Vincent Square as heretofore."

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 4th and 18th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m. The following meeting is fixed for February 1st.

Mr. C. W. Swinden, formerly Orchid grower to the late Elizabeth Lady Lawrence, and who had many years' experience with Sir Trevor Lawrence, under Mr. W. H. White, has been appointed gardener to J. J. Neale, Esq., of Penarth.

Mr. S. Davenport has been appointed gardener to R. Ashworth, Esq., President of the Manchester Orchid Society, Mr. W. Gilden having been called up for military service.

We learn with regret that the *Gardeners' Magazine*, which has been in existence for long over half a century, has decided to suspend publication during the continuance of the war.

The use of gelatine capsules as a successful method of sending pollen by post is mentioned by Dr. Barber in an account of the breeding of the Sugar Cane in Madras. The device might prove useful to Orchidists.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].*

G.H.S.—The plant is Cymbidium longfolium, Don, and agrees completely with authentic specimens and figures.

A.G.– Diuris sulphurea, R.Br., a handsome and fairly common Tasmanian species. It is not in cultivation.

C.H.L.—Flowers are easily dried in a few folds of blotting paper, the segments being first opened where necessary, and when dried can easily be sent by post. There are many species not yet known in cultivation.

BETA.—Natural hybrids are commoner than is often recognised. We will deal with the matter shortly.

A.J.S.—The matter shall have attention at the earliest possible moment.

Photographs received, with thanks.—E.B.C., J.J.N. Others will be acceptable.

T.I.P.—Many thanks; we hope to receive the notes in due course.

Several notes matters are unavoidably held over for want of space.

The Orchid Review

VOL. XXV. FEBRUARY, 1917. No. 290.

OUR NOTE BOOK.

THE recent article on Cattleya Dowiana and its deriatives (*O.R.*, xxiv. p. 270) has aroused a good deal of interest. Besides the article on Albinism and Colour in Orchids, by Mr. Thwaites (at page 6) we have one from the pen of M. Ch. Maron (at p. 30), relating his own experience with C. D. aurea, and it is quite evident that there need be no lack of Cattleyas having white sepals and petals in the future. The collection of the evidence only renders the postponement of the production of whites until the second generation the more remarkable. It is evidently not an ordinary case of what is called Mendelian segregation, for the so-called recessive colour (yellow) does not return, and the dominance of the purple parent, which is such a prominent feature in the hybrids of the first generation, is in many cases lost, while the new colour, white, evidently represents some chemical reaction of the two colours upon each other, which is not manifested on their first combination. The matter is well worthy of experiment from the chemical standpoint. Incidentally it may be remarked that from the evidence it becomes increasingly evident that the white forms referred to C. Hardyana are hybrids of secondary origin, the result of the recrossing of C. Hardyana with C. Dowiana aurea by insects. C. Hardyana has been produced artificially on several occasions, and we do not recall any white form among the seedlings.

Mr. T. L. Mead contributes, at p. 12, a very interesting supplement to the article on Cattleya Bowringiana and its hybrids, from which it appears that he has paid special attention to this particular species, and has succeeded in raising a number of noteworthy additions, those with Epidendrum and Lælia Perrinii presenting some distinct and interesting features. The system of nomenclature adopted is that of forming a name from parts of the names of the parents, but the attempt to extend the system so as to indicate the specific composition of the hybrids of any given group in a uniform way is novel, and, we are afraid, will not always attain the desired object of indicating a complicated parentage without too great a strain upon the memory. To take the third name mentioned, Lælio-

cattleya boarina, we instantly thought of Lælia cinnabarina, not L. Perrinii, as the second parent. Perhaps this would be called Lc. cinboa, which would commit us to cinrin (or rincin), for a hybrid between the two Lælias mentioned. And in any case the suggested abbreviations would give us Cattleya amme (or meam) as a possible alternative for C. interglossa, which is doubtfully recognisable.

And we think that in one important point the system would fail to indicate the composition of a hybrid, namely, when it was recrossed with the original parents. To select one of numerous instances, we may cite the case of Cochlioda Nœtzliana crossed with Odontoglossum crispum, yielding Odontioda Bradshawiæ. The latter has been recrossed with both the original parents, giving Odontioda Flamingo with the Cochlioda, and O. Schrœderi with the Odontoglossum, yet whatever abbreviation was adopted for the primary hybrid would also stand for the two others, since no new specific element was introduced. Such a method would neither be desirable in itself nor helpful in future work. Again, the system would combine the crosses Cypripedium nitens × Spicerianum, C. Lathamianum × insigne, and C. Leeanum × villosum under a single name, the specific composition being identical except in the question of percentages, which would revolutionise nomenclature in another direction. The fact is no euphonious system of nomenclature can be devised that will also indicate specific composition.

We are not much enamoured with the modern extension of the so-called "Jumble name" to species. In the case of genera something was clearly necessary, because generic hybrids cannot properly be referred to either parent genus, and the system initiated by the late Dr. Maxwell Masters, when he coined the name Philageria to indicate a hybrid between Philesia and Lapageria, and which was extended by the writer to Orchids, worked admirably until a modern innovation introduced unnecessary hyphens and capital letters in the middle of the name, a practise which is still continued by some, though expressly vetoed by the provisions of the Brussels Nomenclature Congress. If the system could be extended to species with the same amount of success few serious objections need be raised against it, but its limitations in this direction are now pretty generally recognised.

"Evolution by means of Hybridisation" is the title of a new book by Dr. John Lotzy, whose paper on the "Origin of Species by Crossing" has already been considered (*O.R.*, xxii. pp. 63-66). Its object is to show that, in the author's opinion, inheritable variation *without crossing* does not exist. There is a long discussion as to what a species really is, a question which it

is said ought to be settled both by the systematist and the evolutionist before proceeding further. "A species," we are told, "should consist of a group of individuals of really identical constitution," and what this means must be explained. The species of Linnæus are dismissed as "no species." Jordan long ago observed differences in them, and on isolating individuals showing this variation, and carefully self-fertilising them, he found that the differences observable reproduced themselves from seed, hence he restricted the term "species" to these minor forms. But even their claim to the title is rejected, for the author asks: "Is the standing of the test of faithful reproduction by seed proof of specific purity? The answer is an emphatic 'no.'"

But if neither the Linnean nor the Jordanian species can stand the new test, to what must the term be applied? The answer is: "A species consists of the total of individuals of identical composition unable to form more than one kind of gametes." And how may the systematist recognise them? Morphological comparison is said to be useless, and even the breeding true to type of externally alike individuals is an insufficient test, for "all must have the same constitution, and consequently must be alike under like conditions." The test given for specific purity is (1) to "cross the form to be tested with as many pure species as obtainable, reciprocally," and (2) to submit as many of the F1 individuals of each cross to as extensive hybrid analysis as possible, in order to test their constitutional identity." If they stand these tests it is "very probable indeed" that they are specifically pure. Pity the poor systematist who has to carry all this out before he ventures to describe them! After this we can well understand the reference to the "pure species which are rarely or never met with in nature."

But if these are the true "species," what, then are the others to be called? The Linnean so-called species are to be called "Linneons," indicating "a group of individuals which resemble one another more than they do any other individuals." The smaller Jordanian species are to be called "Jordanons," "forms that are externally alike and that reproduce their kind faithfully when crossing is excluded." "Species" come next, and we need not repeat the definition. "Hybrids" follow, and are defined as individuals able to produce gametes of different constitutions." Lastly, we have the term "Modification," to designate the non-transmittable effect of external circumstances. The term "variety" finds no place in the series.

After such a definition we are a little surprised to find the remark that "Darwin's theory of the Origin of Species is untenable," for what Darwin

wrote about are real and tangible things, things that occur in nature and that can be met with every day, not about Dr. Lotzy's phantom presentments. If Dr. Lotzy has found a "perfectly stable genotype, reproducing faithfully its own kind for ever, unless crossing intervene"—as he formerly defined it—it is a Mendelian homozygote, and he had better call it one. "Species" are not to be removed from the purview of the systematist by such verbal jugglery. Species we have long known as freely intercrossing communities, and cross-fertilisation gives a stimulus to variation, while self-fertilisation tends to uniformity. Crossing is, therefore, a potent cause of variation, but it is not the sole cause. There are multitudes of geographical forms that must have arisen without crossing (to use the term in the sense intended).

Take the labiate Cattleyas, for example. The species, with few exceptions, occupy separate geographical areas, but where C. Warscewiczii and C. Dowiana (aurea) grow together the natural hybrid C. Hardyana occurs—its hybrid origin has been confirmed experimentally in several collections. The labiate Cattleyas cross freely in gardens, but the numerous hybrids are not found in a wild state, because the species grow apart, and hybridisation is largely a question of opportunity. The parent forms have clearly arisen by divergent evolution, or adaptation to changed conditions, for the whole fundamental structure of the body is due to the gradual accumulation of characters that arise as the result of the reaction of the organism to the environment, owing to its power of directing the chemical and physical forces to which its existence is due. Under such changes it would retain such previously acquired characters as were essential, including cross-fertilisation—and necessarily the agencies by which it is effected. Such changes would usually be accompanied by migration and geographical re-arrangement, bringing allied species together and thus affording the opportunity for hybridisation to occur, as we see in such numerous instances to-day. Hybridisation may be regarded as an extension of cross-fertilisation beyond specific limits, and Kerner long ago recognised it as one of the underlying causes of the origin of species, though not the sole cause.

Lotzy rejects Darwin's contention that changed conditions give an impetus to variability, and with it the doctrine of the inheritance of acquired characters, apparently because, as he defines it, "very few of the adherents of the theory believe in the orthodox way that external conditions first change the soma, and through this subsequently the constitution of the gametes." This, however, is a mere begging of the question. It is the old sophism that "a character ceases to be acquired as soon as it becomes heritable;" and like unto it is the phase that "inheritable variability does not exist."

PLEIONE PRÆCOX AND P. WALLICHIANA.

THESE charming little plants, though originally described as distinct by Lindley, have long been regarded as forms of a single species. Plants that flowered recently at Kew, however, confirm the original view, and a comparison of all the materials has shown a considerable amount of confusion in the history of the two.

PLEIONE PRÆCOX was originally described and figured by Sir James Edward Smith in 1806, under the name of Epidendrum præcox (*Exot. Bot.*, ii. p. 73, t. 97), the author remarking: "My excellent friend and fellow-student, Dr. Buchanan Hamilton, having most generously put me into possession of all his drawings of Indian plants, together with his manuscripts and a herbarium of about 1,500 species collected in his journey to Nepal, I hasten to communicate some of these rarities to the public. The country of Nepal has never before been explored by any naturalist. . . . The plant grows among mosses, on the trunks of trees or on rocks, in Upper Nepal. Its name in the Nawar language, spoken by the subjected original natives of Nepal, is *Caybu swa*. The plant subsequently became Pleione præcox, Don (*Prodr. Fl. Nepal.*, p. 37), and Cœlogyne præcox (*Lindl. Gen. & Sp. Orch.*, p. 20), and for a good many years was only known from dried materials. In 1848 it was figured (*Paxt. Mag. Bot.*, xiv. p. 7, with tab.) from garden specimens which flowered in the collection of J. Allcard, Esq., Stratford Green, Essex, in 1845, when it was remarked that it differed from C. Wallichiana principally in being altogether more robust, having paler coloured flowers, and a much finer fringed labellum." And it was added: "Messrs. Loddiges record that they possessed C. præcox in 1840, earlier than which period we question whether it existed in this country."

PLEIONE WALLICHIANA appears to have been recorded for the first time in 1830, under the name of Cœlogyne Wallichiana (*Lindl. Gen. & Sp. Orch.*, p. 43) as a species discovered at Pundua by Dr. Wallich. It was known, however, a good deal earlier, for when it was figured by the latter (*Pl. Asiat. Rar.*, i. p. 46, t. 54) the author remarked (p. 45) that C. maculata and Wallichiana were "natives of the lofty range of mountains which confine Bengal towards the district of Silhet in an easterly and northerly direction. They were introduced into the Hon. East India Company's garden at Calcutta in 1816, and I have often had the satisfaction of seeing them in flower there." In 1838 plants flowered at Chatsworth, and Lindley remarked (*Bot. Reg.*, xxiv. Misc. p. 85): "At last a plant of the beautiful division of Cœlogyne called Pleione by Professor Don has appeared in the

collection at Chatsworth, whither it had been brought by Mr. John Gibson." It was subsequently figured (*Bot. Reg.*, xxvi. t. 24), when it was added that plants from the same source had also flowered with Mr. Bateman, who remarked that the pseudobulb had much of the form and hue of a truffle. Still later it was also figured in the *Botanical Magazine* (t. 4496), where it is remarked: "Discovered by Dr. Wallich in the mountain district of Sylhet and Khasia, and found in great abundance: also by Dr. Hooker as he approached Darjeeling in Sikkim Himalaya, and from him the specimens are derived which are here represented." It has a more eastern distribution than P. præcox, and is readily distinguished from it by the smaller, diflerently-shaped pseudobulbs, the darker-coloured flowers, and the much smaller fringes of the keels of the lip. R.A.R.

ALBINISM AND COLOUR IN ORCHIDS.

I HAVE read with much interest the recent articles on the hybrids of Cattleya Dowiana aurea. I also have found in many cases a tendency of C. D. aurea to produce whites, or at least forms with white sepals and petals. C. Fabia alba Mme. Ed. Debrie, which flowered in October, 1906, was raised between C. D. aurea and C. labiata Cooksonii, and the flowers of all my plants had sepals and petals of the purest white, with coloured lips; while C. Fabia alba, crossed again with different hybrids, produced also white divisions. In December, 1909, I flowered Brassocattleya Diana (C. D. aurea × Bc. Orpheus), and all the flowers were white, including the lips, while, on the contrary, Bc. Orpheus crossed with C. labiata alba gave tinted flowers and marked lips, another proof of the influence of C. D. aurea in producing white. In a batch of Læliocattleya Sir Douglas Haig I found two valuable plants with white sepals and petals, which again shows the same influence, the character in this case coming through C. Octave-Doin (Mendelii × Dowiana aurea).

During last year the Société Nationale d'horticulture de France has held only one meeting monthly, so that it sometimes happens that a new hybrid flowers between two meetings, and some of my novelties have not been named. Some were exhibited in November last, and were described in the Society's *Journal* (p. 175); but there are two mistakes. Brassocattleya Douamont is from Bc. Maroniæ (or Mme. Ch. Maron) × C. Fabia Vigeriana (not B. Maroni, as recorded), and Bc. Mr. D. Bois is from Læliocattleya Truffautiana (syn. luminosa) × Bc. Leemaniæ, and is not, as recorded, of the same parentage as Bc. Dietrichiana, which is from Bc. Leemaniæ and C. Fabia Vigeriana. C. MARON.

Brunoy, France.

OBITUARY.

WILLIAM THOMPSON.—Another of our oldest correspondents has passed away in the person of William Thompson, Esq., who died at his residence, Walton Grange, Stone, Staffordshire, on December 22nd last. Mr. Thompson had attained his 84th year in September, and seemed hale and hearty when we had the pleasure of seeing him last summer, and as keen as ever in his favourite group, Odontoglossum, which he has cultivated for nearly half-a-century. As long ago as April, 1887, he received a First-class Certificate for Odontoglossum crispum Thompson's var. from the R.H.S., and this has been followed by others at intervals down to June, 1915, when O. c. Perfect Gem obtained an Award of Merit. This species was a prime favourite with Mr. Thompson, and the collection was rich in choice varieties, and its numerous hybrids were naturally grown in quantity. An account of the collection was given at pp. 243-245 of our second volume, from which it will be seen that other groups were also well represented. Many interesting things from it have been noted from time to time in our pages, and among them the rare Odontoglossum præstans, which was figured at page 9 of our tenth volume. Here also appeared O. prævisum, the natural hybrid between O. Lindleyanum and O. gloriosum (*O.R.*, xii. p. 176), whose origin we have subsequently proved (*l.c.*, xxiii. p. 101). It was also a plant in Mr. Thompson's collection that enabled the mysterious origin of Cattleya Victoria-R gina to be cleared up, when it was figured, at p. 17 of our third volume, from a photograph by Mr. W. Stevens, who was for so many years Mr. Thompson's gardener. Mr. Thompson was one of the earliest hybridisers of Odontoglossums, though, as with many others, with very limited success for a long period, though later many interesting seedlings have been raised. In this connection we may recall the loss of a considerable number of seedlings owing to the breakdown of the heating apparatus during a period of severe weather. Cypripediums have also of late engaged much attention, and we may recall the handsome C. mirum (Euryades New Hall var. × Alcibiades) which received both a First-class Certificate and a Gold Medal from the Manchester Orchid Society in November, 1913. Mr. Thompson was for many years, and until recently, a member of the Orchid Committee of the Royal Horticultural Society, and was an original member of the Manchester and North of England Orchid Society, formed some twenty years ago, and one of its most consistent supporters and exhibitors ever since. He was also one the judges at the International Horticultural Exhibition held in London in 1912. His name is commemorated in Odontoglossum Thompsonianum (Edwardii × crispum), and Cypripedium Thompsonii (villosum × Calypso).

CATTLEYA BROWNIÆ.

IN connection with the recent articles on Cattleya Bowringiana, it may be interesting to give (on this and the succeeding page) figures of two of its hybrids, for comparison with that of C. Mantinii and of their common parent, given at pp. 237, 249 of our last volume. Cattleya Browniæ (Harrisoniana × Bowringiana) was originally raised by Messrs. Sander, St. Albans, and received an Award of Merit from the R.H.S. in October,

Fig. 4. CATTLEYA BROWNIÆ.

1894 (*O.R.*, ii. p. 334). It was dedicated to the wife of D. S. Brown, Esq., of St. Louis, U.S.A. The figure here given shows a very fine form, derived from the reverse cross, in the collection of Sir Jeremiah Colman, Bart., Gatton Park. The flower is of excellent shape, and has very broad, rosy purple sepals and petals, and a strongly undulate, nearly entire lip, with a light yellow disc. It combines well the characters of its two parents, and is a free-flowering and handsome autumn-blooming hybrid.

LÆLIOCATTLEYA WRIGLEYI.

OF quite a distinct type from the preceding is Læliocattleya Wrigleyi, the result of crossing Lælia anceps with the pollen of Cattleya Bowringiana. It was raised in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and was described at page 359 of our seventh volume.

Fig. 5. LÆLIOCATTLEYA WRIGLEYI.

It is most like the Lælia in habit, but the long scape of the latter is almost suppressed. The flower is fairly intermediate in character, and has rose-purple sepals and petals of good shape, and a subentire lip, with small infolded side lobes, and an expanded, crimson front lobe. Lc. Wrigleyi is the seed parent of Lc. Lorna, a hybrid raised by Messrs. Flory & Black, which received an Award of Merit from the R.H.S. in December last, and was described at page 20 of our last issue.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE general treatment given last month relating to temperatures, watering, atmospheric conditions, and cultural hints generally, are applicable for the present month, which is usually of a wintry nature. The daily amount of sunshine will be appreciably increased, and the consequent increase of temperature in the houses during the middle hours of the day will be greatly to the benefit of the plants.

During spells of clear bright weather, and especially frosty weather, it is advisable to distribute a more liberal supply of water on the stages, floors, and paths, to counteract the dryness caused by the hot water pipes in maintaining the temperatures. In bright sunny weather a slightly humid atmosphere may be maintained, and the houses must be ventilated with care. It is still advisable to keep everything at rest as far as possible, as plants that are unduly pushed into growth may suffer a severe check when more genial weather comes. A thing that the grower has to contend with is the different requirements of the plants that have to be grown together, and average treatment cannot always be correct, but if the temperatures and atmospheric conditions generally are kept as advised the majority will thrive, and exceptional cases can be met by moving the plants. Watchfulness is an essential condition, for there is no royal road to success.

WATERING.—The application of water to the compost is of the greatest importance, and somewhat difficult for a new beginner, as some plants take up much more water than others, and the material in which the plant is growing must be taken into consideration. With the lengthening days the plants will take up more water at the roots; but it must be applied with care, as we may still have periods of cold, wet, and sunless weather. It is much easier to make a compost wet at this season than to get it dry again, a point which is somewhat overlooked by the uninitiated.

POTTING.—With the present month the year's work, as regards repotting, practically begins, and, under the existing conditions, it will be advisable to start as early as possible, and as the different plants arrive at the desired state they should receive attention. Potting, to be effectual, must be well done, otherwise it is best left alone.

COMPOSTS.—As there may be some difficulty in obtaining potting materials during the coming season, many plants may have to stand over until next year. A continual change of the rooting material is a source of trouble and anxiety, and not to the plants' benefit. We are not likely, however, to have much choice, and so must make the best of the material at hand. But as long as the fibres used are made clean and porous,

and are placed into position properly in the receptacles, no harm will accrue, whether peat or AI fibre predominates. Each class of plant has its own individuality, and it should be the cultivator's aim to master the details necessary to grow them satisfactorily.

CATTLEYAS AND ALLIES.—Cattleyas, Læliocattleyas, Brassocattleyas, and others of more complex parentage, have attained such numbers, and show such variety of colour, that they are now indispensable, in fact they are the most popular of all Orchids. Plants that have produced flowers during the winter months may be repotted as soon as new roots are observed to be pushing from the base of the last-made pseudobulb. A clean open material will answer their requirements, and the plants should be potted firmly. The winter-flowering species, of which Cattleya Trianæ, Percivaliana, and chocoensis are the most useful, may have the same attention when their flowering period is passed. Many hybrids in this section also produce flowers at this season, and, in order to produce their flowers, in perfection, it is advisable to give them all the light possible, and sufficient water to keep the compost moist until the flowers are fully developed, afterwards keeping them on the dry side until growth recommences. C. Warneri, Warscewiczii (gigas), maxima, Schilleriana, Lælia Boothiana, crispa, and many hybrids of which L. purpurata is one parent, have commenced to grow, and may have the water supply increased, taking care that the compost becomes dry between each operation.

MEXICAN LÆLIAS, which have passed out of flower and commenced to push new roots from the base of the last-made pseudobulbs, should have attention as regards repotting, should it be necessary. Coarse osmunda fibre and AI fibre, from which all the dust or earthy matter has been removed, makes a suitable compost, but as the former is almost unattainable, we must rely on the latter alone. The material should be made quite firm, especially around the base of the rhizome of the plant. After repotting, water must be carefully administered to the compost, but the surroundings should be kept moist to encourage root activity.

DENDROBIUMS of the nobile section, with its many hybrids, may be brought on gradually, as suggested last month, but no undue forcing should be attempted.

CYPRIPEDIUMS of the insigne section that are in need of new rooting material should have attention as soon as they pass out of flower. They are indispensable for producing flowers during the dullest months of the year, and are, therefore, highly appreciated. There are so many varieties of these delightful plants of exceptional merit that it is impossible to enumerate them in the space at my disposal. They may all be repotted in the same manner as the species, and a suitable compost consists of equal parts of peat fibre, AI fibre, and sphagnum moss, with some clean loam

fibre added. The pots must be well drained, and the compost kept fairly dry until the roots have entered the new material.

ODONTOGLOSSUMS.—O. grande, O. Insleayi, O. Williamsianum, and others of the succulent rooting section will now be at rest, and will require little water at the roots until growth commences. For the Columbian species, with the numerous hybrids, also Odontiodas and other plants which succeed under similar conditions, the remarks made last month are still applicable.

ONCIDIUMS which have flowered, and have now commenced to grow and produce roots, may be repotted, should they be in need of it. These plants resent a sour compost, so that small pots or pans make the best receptacles, and should the compost be decomposed it is best to renew it. A similar compost to that used for Odontoglossums is suitable.

MASDEVALLIAS.—M. tovarensis will now be starting into growth, and the present is a suitable time to repot any specimens that are in need of new rooting material. A compost of clean fibre and sphagnum moss in equal parts is suitable for this and others of the small-growing Masdevallias. The quaint-flowering M. Chimæra section may also have attention at this season, using the same material. They should in every case be grown in baskets, as their flowers are produced in a downward direction. They delight in the temperature of the Intermediate house at this season, but during hot weather are best removed to the Cool house.

GENERAL REMARKS.—Insect pests increase rapidly at this season of the year, if allowed to go unmolested, therefore every means possible should be taken to eradicate them, it being much easier to destroy them now than at a later period when other work is most pressing. Admit air on all favourable occasions, give water whenever they require it, and wait patiently for the plants to commence their season's growth. Under such treatment all will be well, but attempts to force plants into premature growth will in the end be disastrous, as nature will not be coerced.

CYMBIDIUM SYBIL.—A flower of a pretty hybrid, derived from Cymbidium eburneum × Pauwelsii, is sent from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol, by Mr. Coningsby. It has cream-white sepals and petals, the former well suffused with rose at the back, and a rosy lip, with short red lines, arranged in a zone, in front. This is said to be the first of the batch to flower, the spike bearing two flowers, but several others are showing for bloom, some having four buds, and their appearance suggests a good deal of variation. Some of the plants show more of the C. eburneum influeuce. It will be noticed, at pp. 43, 44, that Messrs. Hassall & Co. have already flowered the same cross, and that one of the seedlings, called var. sulphureum, has light yellow flowers.

ORCHIDS FIFTY YEARS AGO.

THE suggestion of an old correspondent that a few notes on Orchid culture and sales in the past would be interesting, prompted us to look at the *Gardeners' Chronicle* of fifty years ago, and we find that an important series of articles, entitled "Orchids and their Cultivation," was being contributed by Mr. James Anderson, one of the foremost growers of the day, after whom Odontoglossum Andersonianum was named. The date was 1867, and a review of the Orchids of the preceding year (1866) informs us that "the star" of the Orchids seems to be once more in the ascendant, and in their ranks would be found by far the largest number of the new plants of the past season. Orchids were no longer, as of yore, confined to the wealthy, but—thanks to cool treatment—were now placed within reach of anyone who could spare the funds for a greenhouse of the most modest proportions. In no former year did so many really first-class Orchids "come out." Of those most familiar to us at the present day we find Cattleya Dowiana, Odontoglossum Hallii, Oncidium Marshallianum, and Dendrobium thyrsiflorum, but there were also D. Maccarthiæ, Saccolabium giganteum, Vanda Bensonii, Epidendrum Cooperi, and Mesospinidium sanguineum (now Cochlioda). It is significant that not a single hybrid is mentioned, but the number of seedlings then in existence was very small.

A discussion was also going on about Oncidium macranthum, which had long been known from dried specimens, and now plants had been introduced which, it was hoped, would prove authentic, and respecting which Messrs. Backhouse remarked: Patience will not (apparently) have to be severely strained in regard to the plant we have imported as Oncidium macranthum, as one of these already shows a flower stem.

Cool Orchids were then coming to the front. In the said review it is mentioned of Odontoglossum Alexandræ that though, strictly speaking, it belonged to 1865, still, we could never have formed any idea of its real beauty until we had seen the specimens that Mr. Pattison and Mr. Anderson sent during the past season from 'ayant the Tweed.' This species was giving trouble to cultivators, and one of them complained that instead of going to rest "the plant starts a fresh growth, in most instances smaller and weaker than the first growth." To this Mr. Anderson replied:—

"Singularly enough, Odontoglossums, as a rule, have never been well grown. True, they were only introduced into this country in limited quantity at first, and the very few that survived the ordeal of a tedious and difficult transit, in a burning heat, to the port of embarkation, were prescribed for and managed with the greatest anxiety certainly, but upon a

system opposed to the wants and habits of the family. It has been subsequently proved that those plants that had been growing on the mountain chains of New Grenada, and sent by collectors down the river Magdalena, to the ports either of Santa Martha or Carthagena, have come home in comparative safety, so that, if judiciously packed, these Alpine Orchids may be considered virtually safe after being placed on board the mail steamers. The countries to which the choicest of the Odontoglossums are indigenous are among the most mountainous in the world, and, although this kind of vegetation does not reach the loftiest summits or the line of perpetual snow on the peaks of the Cordilleras and the crown of the Andes, yet it verges towards it. Look to the provinces of Ecuador, Guatemala, Peru, and New Grenada, and it is not uncommon to find many of the plants in question ranging between 4000 and 10,000 feet altitude. Bogota and its vicinity comprises a rich field of Orchideous treasures, which has been largely gathered from for European stoves, and it is as nearly as possible 9000 feet above the sea level, while according to the best and most reliable information the temperature rarely exceeds 60°, and not rarely falls towards the freezing point. The climate is mild, agreeable, and salubrious, and far less variable as to extremes than that of our own country." He then detailed a course of rational treatment under which his own success had been attained, which might almost have been written to-day.

An account of Orchid sales affords some idea as to the plants then commonly grown and the prices obtained:—

SALE OF ORCHIDS.—Several sales of established Orchids have recently taken place at Stevens'. In that of Mr. Cooper, Alpha House, Coburg Road, the highest price realised for a single lot was for those of Phalænopsis Schilleriana and amabilis, the specimens of which fetched about £9. Aërides Lindleyanum superbum realised 8 guineas: other lots fetched from 12s. to £4. The whole lots, of which there were in all some 422, fetched £454 16s. 6d. Among duplicates, selected from the collections of Mr. Rucker and Mr. Day, a very fine plant of the spotted variety of Odontoglossum Pescatorei fetched as much as £25. The spotted variety of Cypripedium eburneum (Cymbidium must have been intended) realised £12, and a fine plant of C. caudatum 14 gs.; for Veitch's variety of Vanda suavis, £7 15s. was obtained; the Fox-brush Aërides sold for a similar sum, and altogether for some 220 lots £521 6s. 6d. was realised. In the late Mr. Blandy's collection, which has also recently been brought to the hammer, no such prices as those just mentioned, however, were obtained for individual lots, which ranged between 10s. and £5: nevertheless, for some 374 lots as much as £645 was obtained. Among duplicates from Mr. Bassett's collection, a fine plant of Trichopilia crispa fetched £22, and another of Odontoglossum Phalænopsis (now Miltonia) £16; O. nævium

majus fetched 13 gs.; for Aërides affine superbum £11 was obtained, and for Cypripedium barbatum superbiens, £10. The whole sale, which consisted of some 320 lots, realised £821. Among recently imported Orchids £416 was obtained for some 237 lots, among which the highest price realised was 10 gs. for Barkeria spectabilis, a fine mass on native wood, associated with Epidendrum and Tillandsia. Other examples, however, only fetched about £1 per lot, and many lots of other kinds of Orchids only fetched from 6s. to 10s. each. Saccolabium giganteum realised £5 15s., and the beautiful Dendrobium Maccarthiæ £4 5s.; Vanda Bensonii realising about the same amount.

Another matter of interest was a long paper on the Fecundation of Orchids, by C.S.P.P. (the Rev. C. S. P. Parish), Moulmein, in which it was remarked that in England our tropical Orchids seldom, if ever, bear fruit, but that in a state of nature certain species, especially belonging to the Vandeæ, bore fruit abundantly, though there were others which fruited less frequently than might be supposed. He then gave a variety of details, which must have been specially interesting at a time when experiments in Orchid hybridisation were just engaging general attention.

We find, also, an account, by our old friend, J. B. (James Bateman), Biddulph Grange, of a new Orchid pest, "about twice as large as a full-grown aphis, and very lively," of which information was desired, though we have not discovered whether it was ever forthcoming.

AUSTRALIAN ORCHIDS.—At a meeting of the Field Naturalists' Club of Victoria, held in October last, Mr. E. E. Prescott, F.L.S., and Mr. C. French exhibited thirteen varieties of the common Spider Orchid, Caladenia Patersonii, R.Br., which showed a remarkable variation in colour, form, and stature. The colours ranged from white, pink, and red to green and brown. The form variation showed extreme difference in both width and length of the petals and sepals, whilst the height of the plants ranged from three to fifteen inches. At the same time, the true distinction of the species, the six rows of calli on the labellum, was constant throughout.

Mr. Percy Sharman, B.Sc., read a paper on "The Structure of Some Australian Orchids," and, by means of blackboard sketches, drawings, and microscopic sections, illustrated the internal structure of several common species of Pterostylis, an Australian genus known as the "Greenhoods." The lecturer pointed out some interesting details of structure, and expressed the opinion that certain species united by Bentham were distinct, though it is difficult "to draw quite hard and fast rules, since evolution is still taking place in the genus." He also alluded to the absence of stomata in the galea of the flower, a peculiarity, it was believed, not noted in Orchid literature. —*Victorian Naturalist.*

ZYGOPETALUM MACKAYI VAR. CHARLESWORTHII.

ALTHOUGH *Zygopetalum Mackayi* has been in cultivation for about ninety years, we can only recall a single albino of it, namely, the beautiful variety Charlesworthii, which received an Award of Merit from

Fig. 6. *ZYGOPETALUM MACKAYI* VAR. CHARLESWORTHII.

the R.H.S. in January, 1912, and of which a photographic illustration is here given. It has light green, unblotched sepals and petals, and a pure white lip, the usual blue markings being entirely absent, but it agrees with the type in every other respect. The plant was found in an importation from Brazil.

SOCIETIES.

ROYAL HORTICULTURAL.

THE following concludes our report of the meeting of December 16th last, the matter having been held over last month for want of space :—

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group of hybrids, including Læliocattleya Athene (callistoglossa × St.-Gothard). a richly-coloured hybrid of good shape, Lc. St.-Gothard, Cattleya Thora (Empress-Frederick × Pittiæ), C. O'Brieniana alba, good examples of Cypripedium Niobe, Rolfei, and others, Brassocattleya Pocahontas alba, of charming albino with a yellow disc to the lip, and some excellent Odontiodas and Odontoglossums (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a good group of about two dozen choice Cypripediums, including forms of C. Leeanum, Rossetti, Cyclops, Tityus, Thalia, Golden Fleece, Priam, and other good forms (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a good group, including the richly-coloured Cypripedium Moira, C. insigne Sanderæ, S. San-Actæus, C. C. triumphans, varieties of C. Leeanum, and others, with a few good Cymbidiums (Silver Banksian Medal).

Messrs. Flory & Black, Slough, sent Cypripedium Glorita (Actæus langleyense × Golden Glory), a promising yellow with white upper half to the dorsal sepal, the richly-coloured C. Little Gem, and C. Primrose Dame (Fairrieanum × ?), a light coloured hybrid.

Messrs. Stuart Low & Co., Jarvisbrook, sent Sophrocattleya Queen-Empress Low's var., bright rose, with yellow throat to the lip, Cattleya Katie var. Rayon d'Or, and Cattleya maxima alba Low's var.

Messrs. Sander & Sons, sent an interesting little group, including Cattleya Fabia alba, C. Snowflake, and a few other hybrid Cattleyas and Læliocattleyas, Arachnanthe Clarkei, Cirrhopetalum erubescens, Cœlogyne Mooreana, a few good Cypripediums, and others.

The opening meeting of the new year was held at the Drill Hall of the London Scottish, Buckingham Gate, Westminster, on January 16th, and, in spite of very inclement weather, produced a good display of Orchids, the awards consisting of four medals, one First-class Certificate, three Awards of Merit, one Preliminary Commendation, and one Cultural Commendation.

Orchid Committee present : Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, R. A. Rolfe, J. Wilson Potter, Pantia Ralli, F. J. Hanbury, T. Armstrong, A. McBean, J. E. Shill, J. Charlesworth, C. H. Curtis, W. H. White, S. W. Flory, R.

Brooman White, C. J. Lucas, and the Rev. J. Crombleholme, Chairman of the Manchester Orchid Society (visitor).

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM FELICIA (Thompsonianum × crispum).—A brilliant acquisition, having the broad round segments of a good O. crispum, slightly reduced in size, and the colour of the other parent, the lilac ground-colour being largely obliterated by a zone of great violet-purple blotches. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CYPRIPEDIUM LATHAMIANUM VAR. CARDINAL MERCIER (Spicerianum magnificum × villosum).—The fine variety that was described at page 42 of our last volume, having a broad white dorsal sepal, heavily flaked with dark rose purple on the lower two-thirds, and the broad petals and lip honey yellow with mahogany brown markings. Exhibited by the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall).

ODONTIODA GRATRIXIÆ BRYNDIR VAR. (Odm. amabile × Oda. Charlesworthii).—A handsome dark red variety of good form, with much yellow on the broad lip. Exhibited by Dr. Miguel Lacroze, Bryndir, Roehampton.

ODONTOGLOSSUM CONQUEROR (illustrissimum × crispum).—A very handsome hybrid, the flowers being of fine form and substance, densely and evenly blotched with reddish purple on a white ground, which is slightly tinged with purple. Exhibited by Messrs. Armstrong & Brown.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM PETER (parentage unknown).— A promising seedling bearing its first flower, which is well marked with claret-red on a white ground. Exhibited by Messrs. Flory & Black.

CULTURAL COMMENDATION.

ODONTIODA KEIGHLEYENSIS.—To Mr. W. H. White, Orchid grower to Pantia Ralli, Esq., Ashtead Park, for a very fine specimen, bearing six large panicles of scarlet flowers.

GENERAL EXHIBITS.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed flowers of Cypripedium Eurybiades The Baroness and The Dell variety, two large handsomely blotched forms, also the pretty white Cattleya Astron (Harrisoniana alba × Dusseldorfii Undine).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including Cattleya Percivaliana alba, C. Clotho (Trianæ × Enid), a very fine hybrid with blush sepals and petals, and the front lobe of the lip crimson-purple with a narrow white margin, Odontioda Cooksoniæ, Cupid, Seymouriæ and Wilsonii, Odontoglossum eximillus, Victory, and other promising seedlings, Cypripedium Cupid, C. Helen II. var. Armstrongiæ, Miltonia Bleuana and St. Andre, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group of hybrids, including Brassocatlælia Truffautiana (Bc. Leemaniæ × Lc. luminosa), having light rose flowers with the disc of the fringed lip yellow, Bcl. Joan, the brilliant Læliocattleya Momus and Lc. Serbia, beautiful examples of Odontoglossum eximium xanthotes, and other Odontoglossums, a fine Zygopetalum intermedium, some good Odontiodas, and other winter-flowering Orchids (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including Cymbidium Beatrice (Lowianum × Schlegelii), C. Moira (Tracyanum × Pauwelsii), several examples of C. Sybil (eburneum × Pauwelsii), and C. Capella (Wiganianum × Pauwelsii), both showing much variation, also a good example of Odontoglossum loochristiense (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged an attractive group. including examples of Cymbidium Alexanderi, Doris, and Schlegelii, Odontoglossum triumphosum and some good O. crispum, Brassocattleya Bianca, the large and handsome Lælia anceps Chamberlainiana, Cattleya Brenda, and a good series of brilliantly-coloured Odontiodas (Silver Banksian Medal).

Messrs. Flory & Black, Slough, staged a small group, including Cattleya Zephyr (Schrœderæ × Dowiana aurea), Cypripedium Pliny Langley var. (Leeanum Clinkaberryanum × Victor Hugo), and a few other Cypripediums and Odontoglossums.

Messrs. Stuart Low & Co., Jarvisbrook, sent a well-flowered plant of Sophronitis grandiflora, Sophrocattleya Blackii, and Brassocattleya Penelope (C. Fabia × Bc. Maroniæ).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including forms of Cymbidium Alexanderi, Doris, and Gottianum, Cattleya Snowflake and C. Mary-Sander (Dusseldorfii Undine × Suzanne Hye) two charming albinos, Epidendrum polybulbon, Eria globifera, Masdevallia macrura, Maxillaria porrecta, with a few Læliocattleyas, Odontoglossums, and other good things.

At the meeting held on January 30th the exhibits were restricted by a severe frost, and very few put in an appearance, while no awards were made.

Orchid Committee present:—Sir Jeremiah Colman, Bart., (in the Chair), J. O'Brien (hon. sec.), J. Wilson Potter, F. J. Hanbury, Pantia Ralli, E. R. Ashton, J. E. Shill, J. Charlesworth, Arthur Dye, S. W. Flory, Sir Harry J. Veitch, and R. A. Rolfe.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), sent a cut flower of the very handsome Cypripedium Eurybiades, having a clear white dorsal sepal with numerous purple spots and a small green base, and exceptionally broad, mahogany brown petals and lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group of sixteen seedling Odontoglossums, including forms of eximium, gandavense, ardentillus, promerens, and O. Peerless var. rotunda, a very promising seedling, with broad rounded segments and a very broad lip, the ground colour being white, with a broad zone of cinnamon-brown blotches on the segments; also two distinct forms of Odontioda Madeline, and a pretty light yellow O. Amethyst (Odm. Hallio-crispum × Oda. Bradshawiæ), with a narrow zone of red below the middle of the segments.

Messrs. Charlesworth & Co., Haywards Heath, sent a few choice things, including the brilliantly-coloured Odontioda Florence var. amabilis (Oda. Cooksoniæ × Odm. Dora), a finely-shaped form of Cattleya Trianæ, richly-coloured forms of C. Clotho and Læliocattleya Serbia, a very fine form of Odontoglossum crispum bearing a panicle of 21 model flowers, and a good example of O. crispum xanthotes.

Messrs. Hassall & Co., Southgate, staged a group of eleven seedling Cymbidiums, including C. Beatrice and C. Alexanderi, with distinct forms of C. Capella and C. Sybil, the latter varying from white to light yellow in the ground colour, one of the latter colour being called C. Sybil var. sulphureum.

Messrs. Sander & Sons, St. Albans, staged a small group, including Cattleya Trianæ and C. Freda-Sander (Mossiæ Wageneri × Myra-Peeters), the latter clear white with a yellow disc to the lip, Cymbidium Chaffinch (Gottianum × Doris), very prettily spotted with red on all the segments, the ground colour being blush, Cypripedium Actæus var. Radium, a well-blotched form, and C. Lord Wolmer.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on December 21st, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, A. G. Ellwood, P. Foster, A. R. Handley, J. Lupton, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Secretary).

Owing to the severe weather there were few exhibits, but eight choice things received certificates.

FIRST-CLASS CERTIFICATES.

Læliocattleya amabilis var. Ashlandiæ (Lc. Fascinator albens × C. Warscewiczii Stanleyi), a large, well-set flower, with white sepals and petals, and well-marked lip; from R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport).

Cypripedium Alethea (Gaston Bultel × Euryades), a flower of excellent shape, and reddish crimson in colour, the dorsal sepal very flat; from A. Warburton, Esq., Haslingden (gr. Mr. A. Dalgleish).

AWARDS OF MERIT.

Cypripedium Nigger (Mrs. Carey Batten × Beeckmanii), C. Actæus Cainiæ (insigne Harefield Hall var. × Leeanum Clinkaberryanum); Odontoglossum laudatum var. majesticum (Wilckeanum × ardentissimum), and O. eximium var. Red Monarch; from P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson).

Odontoglossum crispum var. Madam Lievre; from Mr. W. Shackleton, [Bradford.

CULTURAL CERTIFICATE.

To Mr. C. Branch (gr. to W. R. Lee, Esq., Heywood), for Odontoglossum crispum Annamii, carrying a spike of seventeen fine flowers.

A few other interesting plants were staged, among them being a good Odontoglossum crispum Luciani, with flowers 3½ inches across; from Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton).

At the meeting held on January 4th, 1917, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, A. R. Handley, A. Hanmer, D. McLeod, W. Shackleton, H. Thorp, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cymbidium Schlegelii roseum (Wiganianum × insigne), tinged and lined with rose, and Odontoglossum illustworth (illustrissimum × Aireworth), a fine, rosy purple form; from Dr. Craven Moore.

Læliocattleya Momus (C. Octave-Doin × Lc. Lambeauiæ), a flower of perfect form and good colour, with well-marked lip; from R. Ashworth, Esq.

Cypripedium Marshal Haig (Clio Shrubbery var. × G. F. Moore), a fine, well-shaped flower, with round, beautifully-spotted dorsal sepal; from Tom Worsley, Esq.

AWARDS OF MERIT.

Læliocattleya Serbia Ashlandiæ, Odontoglossum Black Watch, and Cypripedium insigne speculatum; from R. Ashworth, Esq.

Cymbidium Schlegelii Conyngham var., and Odontoglossum crispum Orestes; from Dr. Craven Moore.

Cypripedium Verdun (Clio × Leeanum Clinkaberryanum), and C. Tracyanum var. Percy; from Tom Worsley, Esq.

CULTURAL CERTIFICATE.

To Mr. C. Branch (gr. to W. R. Lee, Esq.), for Odontoglossum Cobbiæ, carrying a fine branched spike.

GENERAL EXHIBITS.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport), and to Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); the former for a fine general group, and the latter for a group of choice winter-blooming Cypripediums.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a good group of choice Cypripediums, with examples of Cattleya Trianæ, Sophronitis grandiflora, Oncidium cheirophorum, and others.

A good selection of Cypripedium flowers was sent from the collection of the late Wm. Thompson, Esq., Walton Grange, Stone, by Mr. J. Howes, including several seedlings.

Interesting exhibits were also staged by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); W. R. Lee, Esq., Heywood (gr. Mr. C. Branch); Messrs. Charlesworth & Co., Haywards Heath; Messrs. J. & A. McBean, Cooksbridge, and Mr. W. Shackleton, Bradford, several of which appear in the above list of awards.

At the meeting held on January 18th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium var. Zenith, a large flower, well and evenly marked, with large flat lip; from R. Ashworth, Esq.

Odontoglossum crispum var. Hindu, a round flower of almost solid dark colour, with light tips to the petals; from P. Smith, Esq.

AWARDS OF MERIT.

Odontioda Joan var. ashlandensis; from R. Ashworth, Esq.

Odontioda Joan Conyngham var.; from Dr. Craven Moore.

Læliocattleya Britannia var. Lady Bromley Wilson; from S. Gratrix, Esq.

Cypripedium Garland var. Lord Northbourne; from the Hon. Robt. James.

Odontoglossum Grand Duke Nicholas; from W. R. Lee, Esq.

Odontioda Zenobia var. Yellow Surprise; from P. Smith, Esq.

AWARD OF APPRECIATION.

Odontioda Irene var. Glorita (Oda. Charlesworthii × Odm. Uroskinneri), one of the best of the Uroskinneri hybrids yet seen in the North of England; from R. Ashworth, Esq.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a very fine group of Odontoglossums, Odontiodas, and Cypripediums, with Brassocattleya sulphurea, Cattleya O'Brieniana, &c.

A Silver Medal was awarded A. Hanmer, Esq., Chester (gr. Mr. Palin), for a fine group, in which Cypripediums were particularly well represented

Interesting exhibits and groups were staged by P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson); W. R. Lee, Esq., Heywood (gr. Mr. C. Branch); The Hon. Rupert James, Richmond, Yorks. (gr. Mr. E

Benstead); to S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); Messrs. Hassall & Co., Southgate; Messrs. J. & A. McBean, Cooksbridge; Messrs. Cypher & Sons, Cheltenham; Mr. W. Shackleton, Bradford; Messrs. Keeling & Sons, Bradford; and Messrs. Charlesworth & Co., Haywards Heath, several of which appear in the above list of awards.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during February, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Secretary of the R.H.S. announces the abandonment of the Chelsea and Holland House Shows for the current year. The Council has had great anxiety in coming to a conclusion, but, in addition to the shortage of labour, the difficulties of transport, and the desire of the Government to reduce railway travelling as much as possible, there is the further trouble that at the last moment the contractor has reported that he cannot guarantee to put up the tents. These abandoned meetings will be replaced by Shows at the London Scottish Drill Hall on the usual fortnightly dates, namely, May 22nd and July 5th. The Council hopes to have the approval and support of the Fellows in these arrangements.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on February 1st and 15th. The Committee sits at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for March 1st.

An interesting Orchid paper is one of the subjects for the meeting of the Linnean Society, to be held at Burlington House, Piccadilly, at 5 p.m. on February 1st, namely, "The Structure of the Leaves of Hybrid Orchids," by Messrs. J. Charlesworth and J. Ramsbottom, F.L.S.

Two interesting hybrids have just flowered in the collection of H. Worsley, Esq., Sherfin, Bakenden, near Accrington, namely, Cattleya W. H. Evans (Mantinii × Mrs. Pitt), and Læliocattleya Sir David Beatty (Dominiana × Wellsiana). We hope to see the flowers when they bloom again.

By an oversight we omitted to mention, at page 1, that Messrs. Armstrong & Brown, Tunbridge Wells, also obtained a Gold Medal for a brilliant group staged by them at the R.H.S. Chelsea Show.

SOPHROCATTLEYA RAMILLES.—A striking hybrid, raised in the collection of R. G. Thwaites, Esq., Chessington, Streatham, from Cattleya Empress-Frederick and Sophrocattleya warnhamiensis, of which the first flower has been sent to us. It is of excellent shape, the segments being well displayed, and the petals very broad, and of a pretty shade of rosy mauve, while the lip is also very broad, with undulate margin, and the colour deep rose, with copious yellow veining at the base, which latter shows the influence of C. Dowiana aurea very clearly. It is a very charming thing.

LÆLIA JESSICA.—A very pretty chrome yellow flower is sent from the collection of E. F. Clark, Esq., Evershot, Dorset, which is described as a stray seedling, though not impossibly from a batch of Lælia Jongheana × Coronet, and thus a form of Lælia Jessica, though the flower is much more yellow. Mr. Clark has also seedlings of L. flava × Jongheana, grown from seed obtained from Messrs. Keeling some years ago, but one that flowered had white sepals and petals, with orange keels on the lip, and was clearly a form of Lælia Degeestiana, and different from the flower now sent. The pollinia are eight in number, and nearly equal in size, which seems to indicate a pure Lælia parentage, and there are five distinct ridges on the lip, and an approach to L. Jongheana in shape, which tell their own story, while the flower has an expanse of $3\frac{1}{4}$ inches across the petals. L. Coronet is a hybrid from L. cinnabarina × harpophylla, and there is a pale, nearly white margin to the crisped front lobe of the lip and apex of the side lobes that recalls L. harpophylla, and quite bears out the suggested parentage. Mr. Clark states that the habit somewhat resembles L. Jessica, and the bulbs are elongated, and green (not tinged with purple). It is a promising seedling, and should be taken care of, as clear yellows are not too common in the group.

ANSWERS TO CORRESPONDENTS.

CYPRIPEDIUM JOHN CYPHER.—The parentage of this hybrid is C. Antinous × Leeanum Clinkaberryanum, not C. Fairrieanum × aureum Surprise, as recorded at page 20. It is correctly recorded at p. 22. The records were from different sources, and we failed to connect them together.

F.J.H.—Many thanks for the note, which you will see has been duly attended to.

A.C.—The cross has already been named, but the suggested name can stand over for another one.

J.W.—There is no substitute for careful records. It is impossible to tell the parentage of these complex hybrids by comparison. The most that is possible is to recognise the presence of certain species, without knowing the actual parentage. The curious thing is that other seedings from the same capsule will often show evidence of the presence of other species.

We have again to thank an esteemed American correspondent for a contribution for the relief of sufferers by the War. On this occasion we have selected the Red Cross Fund and a suitable acknowledgment is being sent.

The Orchid Review

VOL. XXV. MARCH, 1917. No. 291.

SCHOMBURGKIA SUPERBIENS.

IT has long been recognised that the fine old Lælia superbiens, Lindl., is not a typical Lælia. Warner many years ago remarked: "There are no other Lælias like this in growth, but the Schomburgkias, another family of Orchids, are often sold for it" (*Sel. Orch.*, i. t. 20). And later, Messrs. Veitch added: "As a species, in its botanical aspect, Lælia superbiens stands on the very verge of the genus, approaching so closely the Schomburgkias, of which it has now altogether the habit, that its systematic position would seem to be rather with them than with the Lælias" (*Man. Orch.*, ii. p. 82). Two fine examples are blooming at Kew, and careful comparison leaves no doubt that the species belongs to Schomburgkia, the fusiform, two-leaved pseudobulbs, the long scapes with numerous elongate bracts, and the details of the flowers, with the numerous undulate keels on the disc of the lip, being all in agreement. The species was originally discovered in Guatemala by Mr. G. Ure Skinner, being first seen in 1839, planted in front of some Indian settlements, but a year later was found wild some twenty leagues north of the city of Guatemala. Here it exists in enormous quantities, the finest specimens growing out of the rocks, where it is sheltered from the north wind, some of the spikes being twelve feet long and bearing upwards of twenty light purple flowers. Owing to this character it has been called the Wand of St. Joseph. It was introduced in 1842 by Hartweg, who sent plants to the Horticultural Society of London, and flowered for the first time in cultivation in this country in February, 1844, in the collection of Mrs. Wray, of Oakfield, near Cheltenham. It is a noble species, but a little too large for many ordinary houses.

OTHER SCHOMBURGKIAS.

There are some nine other species of Schomburgkia having fusiform, two-leaved pseudobulbs, long unbranched scapes, with elongated bracts and the flowers aggregated near the apex in somewhat elongated heads, and rather narrow segments with numerous keels on the disc of the rather small lip. These are the original S. crispa, Lindl., and S. marginata, Lindl., from British Guiana; S. rosea, Lindl., and S. Lueddemannii, Prill., from Venezuela; S. undulata, Lindl., S. Wallisii, Rchb. f., and S.

splendida, Schlechter, from Columbia; S. Weberbaueriana, Kränzal., from Peru: and S. Lyonsii, Lindl., from Jamaica, and they form a very homogeneous group.

Another group of species which have been referred to Schomburgkia is really quite distinct, and of these S. tibicinis, Batem., may be considered as the type. These have conical, hollow pseudobulbs, tapering upwards, with three or four short, broad leaves at the apex, branched panicles of flowers, short bracts, the side lobes of the lip broad and ample, and the front lobe smaller and without keels. The hollow pseudobulbs have the peculiarity of forming a nidus for ants, which find an entrance by a small hole at the base.

SCHOMBURGKIA TIBICINIS.

The original S. tibicinis is a native of Honduras, where it is said to exist in great abundance, and where it was discovered by Mr. G. Ure Skinner, whose attention, as we learn from Bateman, "was attracted at a considerable distance by a cluster of its lofty flower-spikes, which, when in full bloom, and in the dense masses that the plant produces in a wild state, must be very conspicuous. On the occasion in question, its original discoverer was not permitted to obtain quiet possession of his prize, as swarms of fiery ants, to which the hollow stems afford a snug retreat, issued forth in thousands to repel the spoiler, and inflicted pangs which none but the most ardent naturalist would have braved." He further adds: "In such request are these vegetable trumpets among the wild urchins of Honduras, that the plant yielding them is called 'the trumpet plant'—an epithet that has suggested the specific name" (*Batem. Orch. Mex. & Guat.*, t. 30).

Lindley afterwards added: "This noble plant is the cow's-horn Orchis of Honduras. Its pseudobulbs, between one and two feet long, are quite hollow, and as smooth inside as the chamber of a bamboo; at their base there is always a small hole, which leads to the interior, and furnishes access to the colonies of ants, which are constantly found inhabiting the plant" (*Bot. Reg.*, 1844, sub. t. 23).

THE GENUS MYRMECOPHILA.

S. tibicinis is quite typical of the remaining species, which we propose to separate under the generic name of MYRMECOPHILA (literally, ant-loving), in reference to their remarkable character, whose utility has been graphically described by Rodway. "What," he asks, "shall we say to the construction of a home for ants, so that its tender aërial roots may be protected from cockroaches and other pests? This many species have accomplished, and now do it so thoroughly as to derive considerable benefi from the contrivance. Perhaps the most perfect of these homes are those provided by Schomburgkia and Diacrium bicornutum. In them we have a hollow pseudobulb, into which the ants either find a doorway ready made,

or are offered inducements to make one for themselves. The result is a perfectly dry, hollow chamber, on splitting which the tiers of cells and galleries are seen ranged from top to bottom."

The following are the species :—

MYRMECOPHILA TIBICINIS. Schomburgkia tibicinis, *Batem. Orch. Mex & Guat.*, t. 30.—Native of Honduras and Guatemala.

M. GALEOTTIANA, A. Rich. in *Ann. Sc. Nat.*, ser. iii. iii. p. 23. S. tibicinis var. grandiflora, *Lindl. Bot. Reg.*, 1831, t. 30. S. Brysiana, *Lem. Jard. Fleur.*, i. Misc. pp. 53, 54, with fig.—Native of S. Mexico.

M. THOMSONIANA. Schomburgkia Thomsoniana, Rchb. f. in *Gard. Chron.*, 1887, ii. p. 38 ; *Bot. Mag.*, t. 7815.—Native of the Camyan Islands, West Indies.

M. CHIONODORA. Schomburgkia chionodora, Rchb. in f. in *Gard. Chron.*, 1886, i. p. 73.—Native of Central America. Flowers white, but the variety Kimballiana, Rchb. f. in *Gard. Chron.*, 1888, i. p. 136, has purple flowers.

M. LEPIDISSIMA, Schomburgkia lepidissima, Rchb. f. in *Gard. Chron.* 1889, i. p. 72.—Habitat not recorded.

M. HUMBOLDTII. Schomburgkia Humboldtii, *Rchb. Xen. Orch.*, i. p. 240 ; *Will. Orch. Alb.*, xi. t. 507.—Native of Venezuela.

M. SANDERIANA. Schomburgkia Sanderiana, Rolfe, in *Gard. Chron.*, 1891, i. p. 202 ; *Reichenbachia*, ser. 2, II, p. 23, to. 59.—Habitat not recorded.

One other Schomburgkia has been described, namely, S. campecheana, Kränzl. (*Gard. Chron.*, 1903, ii. p. 381), which was said to be intermediate between S. undulata and S. Thomsoniana, and was consequently suggested to be a natural hybrid between the two. This we regard as impossible, for the two grow very far apart. It was described from only a few flowers that were obtained by a Bremen Captain who was on his way to Laguna de Terminos, on the South side of the Bay of Campeche, on which course he would pass near the Caymans. There is no record as to where he collected the few flowers obtained, but from the description we suspect that it would have been better described as a form of S. Thomsoniana. R. A. ROLFE.

EULOPHIELLA ROLFEI.—At the R.H.S. meeting held on February 27th last a First-class Certificate was awarded to a striking hybrid Eulophiella exhibited by Messrs. Charlesworth & Co., Haywards Heath. It is one of the first batch of seedlings mentioned at page 166 of our last volume, as follows: "In the Warm house we were much interested to see a number of seedling Eulophiellas in thriving condition. Those from E. Elisabethæ × Peetersiana were four or five years old, and of considerable size, while a later batch was from the reverse cross. Their flowering will be awaited with interest, for the two parents are very distinct, both in habit and colour, and E. Peetersiana, though very handsome, as regards size is rather

unmanageable." In habit the plant recalls a dwarfed state of E. Peetersiana, the scape being about three feet high, and bearing sixteen flowers and buds. The flowers are over 2½ inches across; the sepals and petals bright rose-purple, and the three-lobed lip white inside, tipped with purple, and having seven rows of crested yellow keels on the disc. It is said that the time from the fertilisation of the flower to the development of the ripe capsule and the germination of the seeds was three months, and we do not recall any other epiphytic Orchid which develops so quickly.

VARIATION OF HYBRID ORCHIDS.

AT the meeting of the Linnean Society held on February 15th, Sir David Prain, K.C.M.G., F.R.S., in the Chair, a series of Orchids, flowers, and paintings was exhibited by Mr. R. A. Rolfe, A.L.S., to show variation and segregation of hybrid character. There were three series of Odontioda, all seedlings from O. Charlesworthii (Cochlioda Nœtzliana × Odontoglossum Harryanum), the pollen parents being Odontoglossum crispum, O. Phœbe (cirrhosum × crispum), and O. Harryanum, giving respectively Odontioda Madeline, O. Patricia, and O. Brewii. Of the first there were living flowers of thirteen seedlings out of the same capsule, showing various shades of crimson and red, these having been sent by Messrs. Armstrong & Brown, Tunbridge Wells. The other two series were paintings from Messrs. Charlesworth & Co., Haywards Heath, also varying greatly. Of five forms of Odontioda Patricia from the same capsule one showed a considerable amount of reversion towards the Odontoglossum parent, both in shape and colour, while of seven forms of Oda. Brewii one closely resembled Odm. Harryanum in colour, though not in other details. Paintings of all the parents and grandparents were included.

Lycaste Janetæ (Rossiana × Skinneri) was represented by paintings, by Mrs. Janet Ross, of four out of a batch of twelve seedlings from the same capsule, raised in the collection of the late Mr. H. J. Ross, Poggio Gherardo, Florence, these showing various shades of cream and pale yellow in the ground colour, with or without rose spotting on the sepals, and with or without a maroon blotch at the base of the lip, thus showing segregation (due to incompatability) in what is presumably a primary hybrid.

The next case was that of a hybrid sporting, also from the collection of Mr. H. J. Ross. Cypripedium Dauthieri (barbatum × villosum) is a hybrid fairly intermediate between the parents (which were also shown). This sported successively to an irregularly striped form (var. Rossianum), a much paler form (var. Vanninii), a harlequin-coloured form, green on one side and purple brown on the other (var. Janet Ross), and to a form

with nearly uniform green coloration (var. Poggio Gherardo), approaching the C. villosum parent in colour, all, however, retaining the hybrid shape. A self-fertilised seedling of the striped variety Rossianum shown had returned to the more uniform coloration of the original.

Two species of Cycnoches were also exhibited, showing sexual dimorphism. A painting, by Mrs. Ross, of C. Warscewiczii, Rchb. f., showed male and female flowers on the same inflorescence, five females at the base and about a dozen of the very different males above. The original inflorescence was also shown, this having been sent to Kew when it appeared in 1895. It represented a condition of things still almost unique, for the sexes are usually borne in several inflorescences on the same bulb, as in another drawing of the species also exhibited. Lastly, dried inflorescences from the same plant of C. Rossianum, Rolfe, were exhibited to show their remarkable difference, and the altogether disproportionately large size of the females.

LEAF-STRUCTURE OF HYBRID ORGHIDS.

AT the meeting of the Linnean Society held on February 1st, Sir David Prain, C.M.G., F.R.S., in the Chair, there was an interesting communication from Messrs. J. Charlesworth and J. Rambottom, F.L.S., "On the Structure of the Leaves of Hybrid Orchids," illustrated by a series of lantern projections of a series of microscopic slides made by Mr. Charlesworth.

Mr. Rambottom remarked that an investigation of the various anatomical characters of the leaves of the parents and their hybrids—cuticle, epidermis, water-storage tissue, mesophyll, vascular bundles, sclerenchyma, structure and shape of midrib, &c.—shows that, as a general rule, a structure, when present in both parents in different amounts, appears in the hybrid intermediate in every way—quantity, distribution, size, and shape of parts, &c. This can be well seen by observing the microscopic characters of hybrids which have one parent in common; *Cochlioda Nætzliana* occurs as the female parent in six of the primary hybrids investigated, also being concerned in the parentage of the two secondary ones; and the water-storage tissue and the number of rows of vascular strands show the point very clearly. When a character is present in one of the parents, it may or may not be found in the hybrid; *e.g.*, the leaf of *Epidendrum prismatocarpum* shows a large amount of crystalline substance; the leaves of the hybrid *Lælia cinnabarina* × *E. prismatocarpum* show these crystals, but not in such great quantity; the leaves of the hybrid *Lælia tenebrosa* × *E. prismatocarpum*, on the other hand, do not show any

crystals. In general, if the character of one parent does occur in the hybrid, it is much less developed than in the parent.

Sections of the leaves of thirteen primary hybrids and their parents were exhibited, as follows:—

♀ PARENT	♂ PARENT.	HYBRID.
Cochlioda Nœtzliana	× Ada aurantiaca.	Adioda St.-Fuscien.
„ „	× Miltonia vexillaria.	Miltonioda Harwoodii.
„ „	× Odontoglossum cordatum.	Odontioda Craveniana.
„ „	× O. Harryanum.	Odontioda Charlesworthii.
„ „	× Oncidium incurvum.	Oncidioda Charlesworthii.
„ „	× O. macranthum.	Oncidioda Cooksoniæ.
Lælia cinnabarina	× Epidendrum prismatocarpum.	Epilælia cinnacarpa.
L. tenebrosa	× E. prismatocarpum.	Epilælia bradfordiensis.
Odontoglossum Edwardii	× Cochlioda vulcanica.	Odontioda Vulpecula.
„ „	× O. Rossii.	O. Antiope.
O. Uroskinneri	× Miltonia Schrœderiana.	Odontonia Langowoyi.
„	× O. Edwardii.	Odm. Groganiæ.
Vanda teres	× V. suavis.	V. Maroniæ.

Also two secondary hybrids:—

Odontioda Charlesworthii	× Odontoglossum Harryanum.	Odontioda Brewii.
Odontoglossum Uroskinneri	× Odontioda Charlesworthii.	Odontioda Irene.

Mr. R. A. Rolfe, A.L.S., contributed further remarks, and showed leaves of the two Vanda species in illustration; also leaves of green and tessellated species of Cypripedium, with those of hybrids resulting from intercrossing the two sections.

We believe this to be a preliminary note of what may develop into a very interesting series.

ODONTIODA MADELINE SUPERBA.—A flower of the handsome Odontioda Madeline superba, which received an Award of Merit from the Manchester Orchid Society on February 1st, has been sent from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, by Mr. E. W. Thompson. It is not only very handsome, but altogether exceptional, so much so that some members of the Committee doubted whether it was really derived from Odontioda Charlesworthii and Odontoglossum crispum. It is most like O. Harryanum in size and texture, but the sepals and petals are copiously blotched with crimson-brown on a yellow ground, and the lip has the unmistakable shape and spotting at the base of hybrids of this species. The seedling is said to be seven years old, and was obtained from Mr. W. Shackleton, of Bradford, who says he is certain that the parentage is correct, and has other seedlings of the same batch. We do not see where the colour of the blotches could have come from but from O. Charlesworthii, but the influence of O. Harryanum seems to have almost overpowered O. crispum. It is a brilliant acquisition, and we hope to see flowers of other seedlings of the batch.

DIFFICULTIES OF AN AMATEUR.

I SHOULD be very grateful if you would reply to me in the *Orchid Review* in the following matters, as I am only a war-time substitute with no experience. I may say that I have only one house, which I keep at as nearly an even temperature as possible of 55° to 65° (the thermometer being kept near to the glass), though in the first cold weather of the frost it would not rise above 50° to 55° for two weeks. In structural details the house agrees with all descriptions I have read as to the right type of Orchid house, brick sides, upper and lower ventilators, and stages of slates covered with gravel. And I may add that I gave the plants constant attention in other respects.

1. Mr. Barker says that Cattleyas should be potted when the new roots are appearing. In the greater number of my plants this has occurred when the plants were in sheath. I have tried to carry out the treatment recommended, but evidently I have done something wrong.

2. My Dendrobium nobile produced a good crop of buds, but nearly all have turned yellow and withered. The plants have not been potted for a long time, and the base is an inch or more above the tangle of roots on the surface of the pot. In one case the new growth, which is eight to ten inches high, has thrown out new roots, but in the other case it has not.

3. I should like a few hints on the culture of the Australian Dendrobiums. Mr. Sander recommends "an abundance of moisture all the year round," but I think this does not suit my plants. A Dendrobium tetragonum bloomed in December, and received an immense amount of attention. I am keeping it very dry now. D.C.

[The object of potting when new roots are just appearing is that by this means the plants are immediately able to avail themselves of the new compost, which would not be the case when they are inactive. It does not affect the time of their appearance, and in the case where this occurs just when flowers are pushing up it should be deferred until the latter are over. It is difficult to suggest a cause for the Dendrobium buds going off, unless it is the result of chill, through the temperature having fallen too low in severe weather. Too rapid forcing is generally considered to be the cause. It would also appear that the plants are becoming exhausted for want of potting. It is only when actively growing that the Australian Dendrobiums require an abundance of moisture. The great majority require to be kept fairly dry when at rest, especially those with stout pseudobulbs and fleshy leaves. Some of them experience a long dry rest in a state of nature.—ED.]

BOLLEA LALINDEI.

THE Bolleas and Pescatoreas are not grown to the extent that their merits deserve, and probably one reason is that their culture is not easy; the absence of pseubobulbs, and their habit of growing almost continuously, and producing their remarkable flowers at somewhat irregular intervals, making them somewhat exceptional. They can, however, be grown in a shady position in the warm Intermediate house, care being taken with the watering, for the compost should not be allowed to become

Fig. 8. BOLLEA LALINDEI.

dry, or the plants invariably suffer. The genus Bollea is remarkable for the enormously dilated column, forming a cavity which is almost filled with the very broad, channelled crest, as shown in the annexed figure of B. Lalindei, Rchb. f., a Colombian species introduced by M. Lalinde, a resident of Mendellin, after whom it is named. It flowered with Messrs. James Veitch & Sons, at Chelsea, in 1874, and was described by Reichenbach (*Gard. Chron.*, 1874, ii. p. 33), and was afterwards figured at t. 6331 of the *Botanical Magazine*. The flowers are mauve-purple in colour, with a yellow crest to the lip. It is nearly allied to B. cœlestis, Rchb. f., another Colombian species that is now very rarely seen in cultivation, and which is remarkable for the deep violet-blue colour of its flowers.

PESCATOBOLLEA BELLA.

WHEN Reichenbach described Pescatorea bella, which appeared with Messrs. Veitch, in 1878 (*Gard. Chron.*, 1878, i. p. 492), he remarked: "We have had nothing comparable in colour except Bollea cœlestis. I have a melancholy fear it is a mule between this and some Pescatorea. I cannot help it. There is not the least doubt of the two being totally distinct things. Bollea cœlestis has a very broad boat-shaped column with

Fig. 9. PESCATOBOLLEA.

a disc of rich hairs, and a great square callus: but, on the other hand, the sepals and petals have the same striking uncommon colours, though the broad purplish violet zones are more in the centre in Bollea cœlestis. As it is, we must wait and observe—*laboremus*; there may come the day when we, or those who come afterwards, may get the necessary light." We must still wait, so far as seeing the original specimen is concerned, but what is at least suspected to be the same plant afterwards appeared in the collection of Frau Ida Brandt, of Zurich, having being received from

Consul Lehmann as Pescatorea Klabochorum. This is the plant here figured, and it appears to be quite intermediate between P. Klabochorum and B. cœlestis, hence the name that has been given to it (Rolfe, in *O.R.*, xiii. p. 329). Indeed, Mrs. Brandt, in sending full materials, suggested that it was a natural hybrid with this parentage. It was exhibited in London in November, 1899, where it appears to have been named Pescatorea Gairiana, Rchb. f., but the latter was imported as Bollea cœlestis, so that it may also be a hybrid. Materials are still wanting for comparison, and the original specimen is presumably locked up in the Reichenbachian Herbarium. Some interesting points await solution.

OBITUARY.

GEORGE MASSEE, V.M.H.—We record with deep regret the death, on February 17th, after a short illness, of Mr. George Edward Massee, V.M.H., of Park Place, The Common, Sevenoaks, last head of the Mycological Department of the Royal Botanic Gardens, Kew. George Massee was the son of a farmer, and was born at Scampston, East Yorkshire, in 1850, and early developed a taste for natural history and drawing, taking the National Medal of the year at the York School of Art for drawing from nature. He also studied physics, chemistry, and botany, the latter under Dr. Spruce, the celebrated traveller (who was a relative of his mother), to whose classical work on the Hepaticæ Massee contributed most of the drawings. He then went to the West Indies and South America to study plants and collect Orchids, sending home in bulk, among other things, Oncidium macranthum and Nanodes Medusæ. On his return he took up farming and botanical study, specialising on fungi and plant diseases. On his father's death he came to Kew, studying for a time in the Herbarium, and in 1893 he was appointed Mycologist, in succession to Dr. M. C. Cooke, a post which he held until his retirement in 1915. Among his numerous writings on fungi Massee contributed some important papers on the diseases of Orchids. In 1892 he published a paper on a Vanilla disease, Calospora Vanillæ, Massee (*Kew Bull.*, 1892, pp. 111-120, with plate), and three years later he contributed a paper on the Spot Disease of Orchids to the *Annals of Botany* (ix. pp. 421-429, with plate), in which he showed that Spot was not caused by a parasitic fungus, but by chill under an excess of water, the damaged tissues being afterwards invaded by fungi that live upon decaying vegetable matter. In 1905 he published an account of an Orchid disease found on the leaves of Oncidium Cavendishianum (*Gard. Chron.*, 1905, ii. p. 153, fig. 53), and Cattleya Dowiana (*Kew Bull.*, 1895, p. 302), this being caused by a new fungus, Hemileia americana, a relative of the well-known Coffee disease. He was buried at Richmond Cemetery on February 21st,

a number of his old colleagues being present. He leaves a widow, two sons, and three daughters to mourn his loss.

PROF. ALFRED COGNIAUX.—Information from Belgium has almost been cut off by the war, and we have only recently learnt that Prof. Alfred Cogniaux, author of the Orchidaceæ of the Flora Brasiliensis, passed away on August 15th last, a few days after reaching his 75th birthday. Born at Robechies, Herault, Belgium, on April 7th, 1841, Cogniaux studied at the Normal School of Nivelle, and at the age of 21 obtained his Diploma as Professor, where he remained for the next ten years, being afterwards appointed Conservator of the Brussels Botanic Garden. After publishing Monographs of the large and difficult families, Cucurbitaceæ and Melastomaceæ, he was selected to write an account of the Orchidaceæ for the *Flora Braziliensis*. This work occupied some thirteen years, the first part appearing in 1893 and the last in 1906. For this he obtained the loan of Barbosa Rodrigues' type drawings, and sent them to Kew for comparison and to enable copies to be made. He also paid two or three personal visits. Cogniaux next contributed a monograph of the Orchids of the West Indies to Urban's *Symbolæ Antillana*, in which over 500 species are enumerated belonging to nearly 100 genera, this being completed in 1910. To cultivators of Orchids, Cogniaux was best known as joint author with A. Goossens of the *Dictionnaire des Orchidées*, a work in which a large series of cultivated Orchids are illustrated by chromo-lithography from paintings by the latter. Cogniaux was also a contributor to the later volumes of the *Lindenia*, and of the *Journal des Orchidées*. His name is commemorated in Mormodes Cogniauxii, L. Lind., and Neocogniauxia monophylla, Schlechter, the latter a new genus formed in include the plant formerly known as Lælia monophylla, and another species not yet known in cultivation.

OSCAR FANYAU.—We recently heard from an esteemed correspondent of the death of M. Oscar Fanyau, the well-known French Orchidist of Hellemmes, and now the *Gardeners' Chronicle* cites from the *Petit Parisien* of February 9th an account of the tragic circumstances: "Some time ago the 'Kommandantur' of Hellemmes seized M. Fanyau's house and grounds, leaving the underground floor in the occupation of the proprietor, his grandson, and an old servant. M. Fanyau was seventy years of age. When copper was requisitioned at Hellemmes, he refused to make the prescribed declaration, and, instead, addressed the Commandant thus: 'For two years you have occupied my house. You know its contents. It it pleases you to take away my copper ornaments and works of art I cannot prevent it; but expect from me no declaration, nor any obedience to a German command. I am an old officer of 1870, and I refuse to betray my country by giving over to the enemy material for the manufacture of shells

to kill my countrymen.' For having thus 'resisted' authority, he was imprisoned at Loos, to await deportation to Germany. On the following day he was found dead in his cell, and only after much supplication was his grandchild allowed to make the necessary funeral arrangements." M. Fanyau was an enthusiastic Orchidist, and his collection filled several houses, a speciality being made of the Odontoglossum group. The collection was rich in choice blotched forms, which were well-grown by his able gardener, M. Cleverley, who was also very successful as a raiser, among his acquisitions being Odontonia Fanyauiana (M. vexillaria × Odm. Adrianæ), and O. Cleverleyana (M. vexillaria Leopoldii × Odm. Rolfeæ). We also recall Odontoglossum hellemense (crispum × harvengtense) as another attractive hybrid. There were also some choice albinos among the Cattleyas and Lælias. At the last Horticultural Exhibition held at Lille in June, 1914, M. Fanyau was awarded the Grand Prix d'Honour, a Gold Medal offered by the King of the Belgians, for his collection of Orchids and greenhouse plants.

CYMBIDIUMS FROM BRISTOL.—A series of beautiful Cymbidium flowers is sent from the collection of G. Hamilton-Smith, Esq., Northside, Leigh Woods, Bristol, by Mr. Coningsby. The batch of C. Sibyl (eburneum × Pauwelsii) mentioned at page 36, is represented by four beautiful forms, in which the characters of C. eburneum are prominent. One is a charming albino with a band of yellow on the front of the lip. A second is very similar, but has just a faint tinge of blush. A third is tinged with palest primrose, but has some obscure yellow blotches on the front of the lip, while in the fourth there is a tinge of both yellow and pink, the latter chiefly in the lip. Five forms of C. Alexanderi (Veitchii × insigne) show some of the range of variation in this fine hybrid. One is blush-white, with a crimson column and some yellow and rose on the front lobe of the lip. A second has more blush in the sepals, a paler column, and a few crimson dots near the front of the lip. A third is pale primrose, with a zone of crimson blotches in front of the lip, while in a fourth the blotches extend all over that organ, as in C. insigne. In the last the segments are exceptionally broad, and the ground colour rose, with a zone of crimson blotches all round the lip. The remaining flower is C. Corona (Lowianum × Schlegelii), a beautiful form, the sepals and petals lined and dotted with rose on a light yellow ground, the front lobe of the lip rich brownish crimson, margined with yellow, and the side lobes strongly banded with crimson. Mr. Coningsby remarks that this is the finest variety they have flowered yet. Cymbidiums are prime favourites with Mr. Hamilton-Smith, and the charming hybrids of C. insigne are rapidly bringing the genus to the front.

CALENDAR OF OPERATIONS FOR MARCH.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

SINCE my last we have passed through a period of severe weather, and the extra amount of artificial heat needed to maintain the temperatures is not always to the welfare of the plants. The increased dryness of the atmosphere caused by the extra firing in some cases leads to an outbreak of thrip and other pests. During such times the cultivator must use every means at his command to keep the atmosphere of the different houses in a genial and healthy condition.

With the present month we may look for more genial conditions, and, as the different plants start on their season's growth, care must be taken that they receive no check. The temperatures may now range a few degrees higher, both night and day, in each department, than those given in the January Calendar, especially with sun heat. The atmospheric conditions should always follow the temperatures, the more heat, the more moisture should be used, and the conditions prevailing at this season should be conducive to free and healthy growth. In regulating the conditions, due regard must, of course, be taken of requirements of the plants in each separate department.

VENTILATION, with the increasing power of the sun's rays, will require great attention in this often very wild month. Fresh air must be admitted on all favourable occasions in every department, as this is essential to the welfare of all Orchids.

WATERING will also require considerable attention, and perhaps, at the present season, one requires more patience than at any other, as the plants have not yet began to take up water in quantity. Make sure that the plants actually require water before it is applied to them, and special care must be taken in the case of newly-potted plants.

SHADING, if not already put into position on the houses, should have immediate attention, for we may soon have a period of clear sunny weather. After such a season as the one we have passed through, the plants will not be able to withstand bright sunshine until they have been inured gradually to it.

PREPARING COMPOST.—Every opportunity should be taken to prepare composts, so that when the busy season comes the most may be made of the time at the grower's disposal. It is sound business to repot any plant whenever the compost shows sign of decay, for it is much easier to keep a healthy growing plant than to nurse an unhealthy one back to good health.

DECIDUOUS ORCHIDS.—The deciduous Calanthes, Thunias, Cyrtopodiums, and similar plants will soon be ready for repotting, having started

into growth. Good fibrous yellow loam is the chief element of the compost for the plants. This applies to all plants which delight in a high temperature. If the loam is not of the best quality, one half peat fibre may be used with advantage. Personally, I do not advise a rich rooting compost in any case, but rely on generous feeding when the plants are well rooted. The compost should be placed in a warm place to get fairly dry and warm before being used, as much harm may accrue if the plants are placed in a cold compost. Whilst in growth these plants require plenty of heat and moisture, and must not be exposed to the direct rays of the sun.

PHAIUS.—These plants succeed in a similar compost to the preceding, and under the same cultural conditions. Any plants that are in need of new rooting material should have attention just before the new growth commences to push roots.

CYMBIDIUMS.—There are now so many beautiful hybrids of this easily-grown genus, in addition to the species, that no collection is complete without some of them. All require similar treatment, and I refrain from giving a list of varieties. These plants also delight in a compost similar to that used for Calanthes, but succeed in a cool Intermediate temperature, with an abundance of fresh air. In fact, they succeed, if treated like warm greenhouse plants, but should be placed out of direct draughts.

CYPRIPEDIUMS of the winter-flowering section that may need more pot room, or new material, should have attention as they pass out of flower. The compost advised in last month's issue will answer their requirements. The sooner the repotting is completed the better, for the plants quickly re-establish themselves, and make much stronger growths than when left to a later period.

VANDAS.—Such plants as Vanda teres, V. Hookeriana, V. Miss Joaquim, with Renanthera coccinea, and others which succeed under the same conditions, should now be placed in their growing quarters. These plants enjoy all the light possible, therefore a light position in the East Indian house or plant stove should be selected for them. The surroundings should be kept moist at all times, and in bright weather they may be syringed overhead once or twice a day.

CATTLEYAS and the allied genera will now require more attention. Plants which have flowered and are commencing to make new roots, should be repotted if they require it. It is necessary that the compost should be kept in a sweet and healthy condition at all times, therefore the material used should be thoroughly cleaned. There is a diversity in the rooting powers of individual plants, some making strong and robust roots, others small and feeble ones, and this should be an index, so to speak, to the size of the pots or pans to be used. The strong growers may be given larger pots, while the feeble roots should be more restricted. A suitable mixture,

which I have used with the best results for some years, is composed of the following materials: equal portions of peat, A1 and osmunda fibres, and sphagnum moss, all thoroughly cleaned and used in a rough state. If any difficulty is found in getting osmunda or good peat fibre, A1 fibre and sphagnum moss will make a suitable compost, the amount of sphagnum being proportionately reduced. The water question must be studied closely at all times, no matter what the nature of the compost may be.

PLEIONES.—The late-flowering Pleiones, such as P. humilis and P. Hookeriana should have attention as regards repotting should it be necessary. Shallow pans are the best receptacles, and a compost as advised for the earlier-flowering varieties, P. maculata, lagenaria and others, which are now growing vigorously, will satisfy their requirements. They are best grown suspended at the warmest end of the Cool house.

PHALÆNOPSIS that have commenced to make new roots may have attention as regards new rooting material, should it be necessary. They are best grown in baskets suspended from the roof, and delight in abundance of heat and moisture whilst making their growth, and even during the winter months a certain amount of atmospheric moisture is necessary to their well-being. The Cattleya compost is a suitable rooting-medium for them.

DENDROBIUMS of the deciduous section will now be responding to the influence of increased light and heat, and flower buds will develop quickly, and make a good show. As a means of prolonging the display some plants may be removed to cool quarters, but this is not to be recommended in the case of weak growers or delicate plants. D. Phalænopsis and its numerous hybrids that are developing new growths, and are in need of new rooting material, should have attention as soon as new roots are observed to be pushing from the base of the young growths. It is perfectly safe to repot any plant whenever new roots are observed to be pushing. The chief details in the cultivation of this class of plant are plenty of heat, light, and moisture whilst in full growth, with a dry rest after blooming. A clean fibrous compost made up of equal portions of A1 fibre and sphagnum moss answers their requirements.

GENERAL REMARKS.—More genial atmospheric conditions can now be maintained in the different departments, to which the plants will respond readily, but no attempt should be made to hurry them into growth, for Nature generally takes her own time, and all we can do is to assist her by guarding against adverse conditions. Parasites of every description are a hindrance, and must be destroyed as soon as their presence is detected. The roof glass should also be cleaned from deposits of soot and other matters which accumulate during the winter, so as to give the plants the benefit of all the light possible.

AËRIDES VANDARUM.

COMPARATIVELY few East Indian Orchids succeed in the Odontoglossum house, but the striking Aërides Vandarum, here figured, is one of the exceptions, for a plant of it is again flowering very freely at Kew, at one end of this house, where it has had a permanent position on a raft for years, and steadily increases in size. Its slender, whip-like leaves

Fig. 10. AERIDES VANDARUM.

give it a very distinct appearance, and the flowers are attractive, their colour being white, slightly flushed with pink. The position, however, is not essential, for Messrs. Cypher grow it equally well in the cool Intermediate house. It is a native of the Khasia Hills and Munipur, and has been known since 1857, when it flowered with Mr. Parker, of Tooting, and was figured under the erroneous name of A. cylindrieum (*Bot. Mag.*, t. 4982). The history of the species has already been given (*O.R.*, xiii. pp. 60, 61).

SOCIETIES.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on February 13th, but the weather was still cold and the display of Orchids small. Two select groups, however, received Silver Flora Medals, and other awards were made to three interesting exhibits.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Walter Cobb, W. Bolton, R. A. Rolfe, F. J. Hanbury, R. G. Thwaites, Pantia Ralli, E. R. Ashton, E. H. Davidson, Arthur Dye, C. H. Curtis, J. Charlesworth, R. Brooman White, and T. Armstrong.

AWARD OF MERIT.

LÆLIOCATTLEYA TRIDENT (L. Diana × C. Trianæ Backhouseana).—A striking hybrid, having the petals feathered with dark purple over three parts of their area, and the lip intense purple with a chrome yellow throat. The flowers are much larger than in the Lælia parent. Exhibited by Messrs. Flory & Black.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM ALCIBIADES (eximium × ?).—A very promising seedling, having very broad, rounded segments, with a zone of light claret-brown blotches below the middle, the ground colour being white. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

EPIDENDRUM POLYBULBON AND VAR. AUREUM.—To Messrs. Armstrong & Brown, Tunbridge Wells, for two very finely-grown specimens, each bearing over 100 flowers, those of var. aureum having greenish yellow sepals and petals without the usual brown suffusion. The plants were imported from Jamaica about fifteen years ago.

GENERAL EXHIBITS.

J. Ansaldo, Esq., Rosebank, Mumbles, S. Wales, sent a hybrid Cypripedium of the Baron Schröder type, which was remarkable for having developed three flowers on separate scapes at the apex of the growth. The dorsal sepal was well blotched with purple.

C. B. Heywood, Esq., Woodhatch, Reigate (gr. Mr. J. Harris), sent Cypripedium Mary, of unrecorded parentage, but the general character suggested the influence of C. Harrisianum and possibly some C. Charlesworthii hybrid.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Cresswell), sent Læliocattleya Santa-Fe (Lc. Copia × C. Enid), a fine blush white hybrid,

with the front lobe of the undulate lip purple and some yellow lines in the throat.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group of hybrids, containing a well-flowered plant of the graceful Maxillaria sanguinea, Cypripedium Cupid, C. Daisy-Barclay, and C. Helen II. Orchidhurst var., Odontioda Amethyst, Charlesworthii, and Madeline, a fine plant of Odontoglossum illustrissimum Orchidhurst var., O. Amethyst Glebelands var., the fine O. crispum Luciani, and a number of promising seedlings, including O. Fabia (Aglaon × eximium), a richly-coloured flower, O. Ancre (Mars × armainvillierense), white, with zones of chocolate blotches, good forms of O. eximillus, promerens, Peerless, Conqueror, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a group of choice things in well-grown examples, including two forms of Brassocatlælia Joan, one with deep yellow flowers, the other flame-coloured with a yellow throat, fine examples of Læliocattleya bella alba, Lc. Serbia, Lc. Daphne (Lc. Gottiana × C. Enid), a fine thing, having blush-white sepals and petals and a purple-crimson lip, Lc. Miranda (Dominiana × St.-Gothard), a charming novelty, having rose-coloured sepals and petals, and a purple lip, with lilac margin and deep yellow lines in the throat, good examples of Odontoglossum Jasper and armainvillierense xanthotes, and several brilliantly-coloured Odontiodas (Silver Flora Medal).

Messrs. Flory & Black, Slough, staged a good example of Brassocattleya Andre-Maron, Bc. Floryi (Bc. Leemaniæ × C. Empress-Frederick), a promising hybrid, having blush-coloured flowers of good shape, with a rosy zone round the yellow disc of the lip, Sophrocattleya warnhamensis, the new Sophrocatlælia Myra (described at page 5), and the clear yellow Cypripedium Glorita.

Messrs. Hassall & Co., Southgate, staged good examples of Cymbidium Alexanderi, Sybil, and Corona (Lowianum × Schlegelii), with a good form of Sophrocattleya Saxa bearing two flowers.

Messrs. Sander & Sons, St. Albans, sent a good form of Læliocattleya Sir Douglas Haig (Lc. Henry-Greenwood × C. Octave-Doin).

On February 27th there was a larger display of Orchids, and a feature of the meeting was a fine hybrid Eulophiella from Messrs. Charlesworth & Co., which gained a First-class Certificate. Other awards were two medals, three Awards of Merit, and a Preliminary Commendation.

Orchid Committee present:—Sir Jeremiah Colman, Bart., (in the Chair), J. O'Brien (hon. sec.), W. Bolton, S. W. Flory, Arthur Dye, W. H. Hatcher, T. Armstrong, F. J. Hanbury, E. R. Ashton, R. A. Rolfe, and R. Brooman White.

FIRST-CLASS CERTIFICATE.

EULOPHIELLA ROLFEI (Elisabethæ × Peetersiana).—A striking hybrid, most like a dwarfed E. Peetersiana in habit and in the colour of the flowers, but intermediate in other respects. The inflorescence is stout and about three feet high, and it bore twelve flowers and four buds, the former over 2½ inches across, with rosy purple sepals and petals of waxy texture, and a white, three-lobed lip, with a purple apex, and several yellow crested keels on the disc. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

CYMBIDIUM INSIGNE ALBUM.—A charming white variety, bearing an inflorescence of eleven flowers, with the disc of the lip yellow, and a few obscure pale buff blotches on the side lobes. Exhibited by Messrs. Armstrong & Brown.

MILTONIA VENUS (vexillaria × Phalænopsis).—A charming little plant, with much of the general character of the seed-bearer, but the lip spotted with ruby crimson, and the base yellow, with radiating crimson lines. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA JOAN BROADLANDS VAR. (Oda. Charlesworthii × Odm. armainvillierense).—A brilliantly-coloured variety, bearing very deep ruby-red flowers, the lip being paler with ruby-red blotches and the disc yellow. Shown by E. R. Ashton, Esq., Broadlands, Camden Park, Tunbridge Wells.

PRELIMINARY COMMENDATION.

ODONTIODA MADELINE VAR. OPAL (Oda. Charlesworthii × Odm. crispum).—A seedling of good shape and exceptionally dark brownish claret-colour, with some deep rose on the lip. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, the prominent feature being about thirty well-grown Odontiodas, including forms of Charlesworthii, Madeline, one with much yellow in the ground colour, Lambeauiana, Brewii, Patricia, Wilsonii, Joan, Cooksoniæ, Diana, Royal Gem, and O. Sensation (Oda. Vulystekeæ × Odm. crispum), Cattleya Trianæ alba, C. Enid alba, Brassocattleya Cliftonii, a handsome form of Odontoglossum Aglaon, O. eximium xanthotes, and O. Norta (Jasper × Phœbe), most like the former but with more acuminate segments (Silver Flora Medal).

Messrs. Sander & Sons exhibited a good group, including forms of Miltonia Bleuana, Cymbidium Pauwelsii, and Gottiana, Læliocattleya Serre (Lc. bletchleyensis × C. Percivaliana), having pale rose sepals and petals and a purple lip, Brassocattleya Andre-Maron var. amabilis, Odontoglossum percultum, Xylobium leontoglossum, the rare Eria globifera and E. clausa, Platyclinis glumacea var. valida, and others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group of choice things, including Sophrocattleya Atreus gloriosa (S. grandiflora × C. Lawrenceana), a dark scarlet form, Cattleya Clotho magnifica, Sophrocatlælia Iris (Lc. Thyone × Sc. Doris), having cowslip yellow sepals and a rose-purple lip, with yellow lines in the throat, Brassocattleya Leemaniæ, Odontoglossum eximillus, Odontoda Armstrongii var. Jupiter, with ruby crimson flowers, and a few others.

Messrs. Flory & Black, Slough, sent a good Cattleya Blackii alba (Mendelii alba × Gaskelliana alba), and Brassocatlælia Harrisonii (Lc. Juno × Bc. Leemaniæ), showing some of the influence of Lælia majalis in the lip.

Messrs. Stuart Low & Co., Jarvisbrook, sent Brassocattleya speciosa (Bc. Veitchii × C. Schrœderæ) a blush-white hybrid, with pale yellow lip, a good Bc. Menda, and Læliocattleya Calabria (Lc. Myra × C. Schrœderæ), primrose yellow, with the front lobe of the lip orange-coloured.

MANCHESTER & NORTH OF ENGLAND.

At the meeting held at the Coal Exchange, Manchester, on February 1st, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, Dr. Craven Moore, J. Cypher, J. Evans, P. Foster, A. R. Handley, D. McLeod, W. Shackleton, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Cypripedium Lloyd-George (aureum Hyeanum × Beeckmanii), a fine well-set flower, with broad petals, and the dorsal sepal with a broad margin of white; C. Alcibiades magnificum West Point var., similar in form and colour to C. Alcibiades illustre; from S. Gratrix, Esq.

Brassocattleya Bianca var. Ashworthiæ (Bc. The Baron × C. Mendelii), a large flower, of good form and rich colour, with well-balanced lip; from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontioda Linda (Oda. Diana × Oda. amabile), Odontoglossum waltonense Conyngham var. (polyanthum × crispum), and Cymbidium Alexanderi var. Enchantress (eburneo-Lowianum × insigne); from Dr. Craven Moore.

Odontoglossum crispum aureum superbum, and Odontioda Madeline var. superba (Odm. crispum Britannia × Oda. Charlesworthii); from P. Smith, Esq.

Sophrocattleya Ashworthiæ (Doris × Blackii); from R. Ashworth, Esq.

AWARDS OF APPRECIATION.

Odontoglossum Peerless var. The Buff (Ossulstonii × eximium), and O. Mersey Star (eximium × King Emperor); from P. Smith, Esq.

Odontoglossum Dr. Andrea Angel (crispum Lucianii × moorte-bekiense); from S. Gratrix, Esq.

Odontioda Armstrongii (Odm. Armstrongiæ × Oda. Vuylstekii), and Odontoglossum Doris (Ossulstonii × crispum; from Messrs. Armstrong & Brown.

A Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a fine group.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson); Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); Messrs. Sander & Sons, St. Albans; Messrs. J. & A. McBean, Cooksbridge (including Læliocattleya Beatrice, from Lc. Smilax × L. anceps Schrœderiana); Messrs. Keeling & Sons, Bradford; Messrs. Armstrong & Brown, Tunbridge Wells, and Mr. W. Shackleton, Bradford, several of which appear in the list of awards.

At the meeting held on February 15th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, W. Shackleton, H. Thorp, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum var. Mrs. E. W. Thompson, of good shape, with brown blotches on the sepals, and the fringed petals solid reddish brown with white margin, and Odontioda Diana magnifica, a large flower of good colour; from P. Smith, Esq.

Brassocatlælia Joan var. Mrs. Gratrix, with the flower of good form, and of a beautiful apricot-yellow shade; from Mrs. Gratrix.

Cymbidium Alexanderi exquisitum, a large flower of good shape, and the lip with small crimson markings; from Dr. Craven Moore.

AWARDS OF MERIT.

Odontoglossum Jasper var. Ashworthiæ, and var. Moonlight, Cattleya Mabel (Warneri alba × Susanne Hye de Crom), and Brassocattleya Bianca var. Daphne; from R. Ashworth, Esq.

Odontoglossum Ceres Sir Trevor Lawrence's var. (Rolfeæ × Rossii), and O. Cobbiæ var. Mars; from P. Smith, Esq.

Cattleya Enid var. Mrs. Gratrix; from Mrs. Gratrix.

Odontoglossum ardentissimum var. Caroline; from Dr. Craven Moore.

Odontoglossum amabile Gilroyd var.; from John Hartley, Esq.

CULTURAL CERTIFICATE.

To Mr. Davenport (gr. to R. Ashworth, Esq.), for Odontoglossum Jasper Masereelianum.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a very fine group, in which Odontoglossums and Odontiodas, with the Cattleya group, were prominently represented.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a good group of Cypripediums, Calanthes, and white forms of Lælia anceps, with the rare Masdevallia gargantua, Cœlogyne intermedia, and others.

Interesting exhibits were staged by Mrs. Gratrix, Whalley Range (gr. Mr. Jemmison); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson); Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); John Hartley, Esq., Morley (gr. Mr. Coope); Messrs. J. & A. McBean, Cooksbridge, Messrs. Sander & Sons, St. Albans, and Mr. W. Shackleton, Bradford, a number of which appear in the above list of awards.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during March, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 1st and 15th. The Committee sits at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for April 5th.

We learn that Mr. F. Gover has been appointed gardener to R. G. Thwaites, Esq., Chessington, Streatham, Mr. E. Hannington having been called to the colours.

The *Horticultural Directory and Year Book* has reached its fifty-eighth year of publication, and a copy of the issue for 1917, which has just reached us, show that it is as indispensable as ever to horticulturists. There is a County Directory of the principal gardens in Great Britain and Ireland, also one of Nurserymen, Seedsmen and Florists, as well as an alphabetical list of gardeners, with lists of Horticultural Societies, Schools and Colleges, Parks, &c. The Novelties of 1916 include descriptive lists of the plants certificated by the Royal Horticultural and other Societies, and the Obituary for the year includes, under the heading "Pro Patria," particulars of twenty members of the profession who have given their lives in fighting for the Old Country and, we have not the slightest hesitation in saying, the cause of right and justice. It is published by the proprietors of the *Gardeners' Chronicle*, 41, Wellington Street, Covent Garden, London, W.C.

A very varied and beautiful series of thirteen seedlings of Odontioda Madeline (Oda. Charlesworthii × Odm. crispum) is sent by Messrs. Armstrong & Brown, Tunbridge Wells. They show various shades of crimson and scarlet, in some cases with traces of yellow on the ground colour. A further note about them will be found on page 52.

"THE ORCHID REVIEW.—The twenty-fourth volume of the *Orchid Review* is dedicated to O. O. Wrigley, Esq., Bridge Hall, Bury, 'an enthusiastic and highly successful amateur of Orchids for a period of over half a century,' which reminds us that the Review has flourished for a period nearly equalling that for which the Reichenbachian Herbarium was sealed up. The interest is well maintained, this and the two later numbers containing articles on Albinism and Colour in Orchids, by R. G. Thwaites, Esq., and M. Ch. Maron; a Parasitic Orchid Fungus which has been identified from Glasnevin; the Glympton collection of Orchids, in which the experiences of an amateur are detailed; a review of Dr. Lotzy's work, 'Evolution by Hybridisation;' Orchids fifty years ago, based on records in our own pages of that period; and numerous other interesting notes and figures. We congratulate the Editor on his continued success."—*Gardeners' Chronicle.*

ODONTOGLOSSUM FELIX.—A flower of a pretty hybrid derived from Odontoglossum Thompsonianum, has been sent by R. G. Thwaites, Esq., Chessington, Streatham, but the other parent is, unfortunately, unknown. The petals have an expanse of $2\frac{3}{4}$ inches, and though broad below are acuminate above, this and the dark red-brown spotting much recalling O. Phœbe, or possibly a good O. Andersonianum. The sepals are less spotted, and both have a lilac-purple ground colour, and are strongly recurved. The lip is narrow and slightly pandurate, the basal half deep yellow, with a few red markings, and the front white, with a crimson-brown blotch in front of the crest. Other seedlings may, perhaps, suggest a further clue.

A FREAK CYPRIPEDIUM.—I read with interest the notes on Abnormal Cattleyas (*O.R.*, xxiv. pp. 260, 261, 282). I am sending you a bloom of Cypripedium Euryades New Hall Hey var., which you will see has two dorsal sepals. There is another bloom on the plant that is quite normal. I have grown a number of Cypripediums for twenty years, but have never seen one like this before, and think it may be of interest.—J. DEANE WILLIS, Bampton Manor, Codford St. Mary, Wilts.

[A curious freak, which has the additional merit of beauty, for the two spreading dorsal sepals, copiously blotched with purple on a white ground, are very striking. It recalls a case of the same variety from the collection

of J. J. Holden, Esq., of Southport, where a single flower had this character, but all the rest on the plant were normal (*O.R.*, xx. p. 128). This handsome variety seems prone to the production of such flowers, for a plant was sent some years ago by Mr. G. H. Moore, Esq., of Bourton-on-the-Water, Glos., to show the peculiarity, and it has since flowered several times in the Kew collection, the flowers having mostly the bizarre character mentioned, with occasionally a normal one.—ED.

CYPRIPEDIUM DESDEMONA HADDON HOUSE VAR.—This very handsome hybrid, from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, received a First-class Certificate from the Manchester Orchid Society on February 18th last. It was derived from C. Alcibiades × Mrs. Carey Batten, and a flower is now sent by Mr. E. W. Thompson, who remarks that it has been out for nearly six weeks. The shape is excellent, and the nearly flat dorsal sepal, which measures $2\frac{3}{4}$ inches across, has a broad white margin all round, and a bright green centre, copiously blotched with dark brown. The petals and lip recall C. villosum, but the former are nearly horizontal, and are $1\frac{1}{2}$ inches broad. It is a fine example of the improvement that is being effected in these useful winter-flowering plants.

ODONTOGLOSSUM TACKII.—A pretty little hybrid, derived from Odontoglossum blandum × Rolfeæ, of which flowers have been sent by Messrs. Stuart Low & Co., Jarvisbrook. The sepals and petals are lanceolate, acuminate, and copiously spotted with reddish purple on a white ground, while the lip is well developed, somewhat pandurate, and white with a few purple markings in front of the yellow crest. It is dedicated to Mr. E. Tack, Messrs. Low's able Orchid grower.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

D.C.—The flower shows unmistakably the influence of Cypripedinm insigne, and we think of C. Boxallii rather than of C. villosum, which would make it a form of C. Schlesingerianum. We cannot trace the presence of a third species. It is not impossible that one of the parents may have been a hybrid, but we cannot trace the presence of a third species.

E.W.T.—Many thanks. We hope to see the flowers in due course.

We regret a delay in the supply of binding cases, and some bound volumes for last year, but, owing to the abnormal conditions, our binders have not yet been able to supply them.

ERRATA.—The figures at pp. 32, 33 and 40 of our last issue should have been numbered Fig. 5, 6, and 7. Readers are requested to make the necessary alterations.

The Orchid Review

VOL. XXV. APRIL, 1917. No. 292.

OUR NOTE BOOK.

IT is interesting to watch the steady accession of secondary and more complex hybrids of the popular genera which now appear so regularly at our horticultural meetings, and which so largely monopolise the award lists. To take the meetings of the Royal Horticultural Society for the first three months of the present year, we find that fifteen of the twenty certificates issued have been gained by plants of this kind, while four others have been primary hybrids, leaving one solitary example—Cymbidium insigne album—for an imported plant. In addition to those which gained certificates there were several other promising hybrids that will be heard of again when they have attained their full development. Here lies a great field for development in the future. Many of the more popular garden Orchids have been combined in various ways, and the best of the primary hybrids have been again united among themselves, especially those which promise to yield new developments, the result being a vast number of seedlings from which desirable parents can be selected for future work. This continued crossing combined with selection of the parents is already yielding good results, and promises further developments in the future. In fact, the foundation of several distinct races of florists' Orchids is being securely laid.

In the case of Odontoglossum the additions group themselves largely round the popular O. crispum, which has been crossed with almost every other species of note, also with species of the allied genera, and selections from the resulting hybrids have been recrossed in almost every possible way, so much so that some of the more complex hybrids chiefly differ in the proportions of their specific composition. This fact, and the wide range of variation seen in batches of seedlings from the same capsule, makes it impossible in many cases to tell their precise origin by comparison alone, and all one can do is to trace the characters of the species entering into their composition without knowing their exact descent.

Something of this kind must have happened with O. crispum in a wild

state, where it grows intermixed with O. gloriosum, luteopurpureum, and Lindleyanum, and, in another locality, with O. Hunnewellianum. Messrs. Veitch long ago remarked that these natural hybrids were indefinite in number, but highly deserving of attentive study, though it was at present hopeless to attempt any satisfactory explanation of their origin. And they added:—

"From the first it has been observed of these natural hybrids, that it is an extremely rare occurrence for any two appearing in different importations to be identical, although apparently derived from the same two species, and sometimes even sufficiently like each other to come under the same name. Nor ought this to be wondered at; the agency by which these hybrids and polymorphisms have been produced, has been in operation for ages past, and it cannot but have happened that a large number of these forms, both of those that are known, and of those hereafter to be brought to light, are not the immediate offspring of two recognised species or more primitive types, but are descended from their mixed progeny, further complicated by an occasional cross with one or other of themselves. Hence we already possess a number of forms that are "confluent in series," of which the two extremes are too widely separated for the interval to be covered by one, two, or even more intermediate forms."

It was naturally hoped that some of these doubtful points would be cleared up when the possibility of raising Odontoglossum seedlings in quantity in gardens was demonstrated, but although some progress has been made it is far less than was anticipated. The reason has been largely due to the possibility of using showier things, which happen not to grow with O. crispum, as O. Harryanum and O. Pescatorei, or something that promised a new development of colour, as O. Edwardii, and outside the limits of the genus such fine things as Cochlioda Nœtzliana and some of the Miltonias. The experiments have been largely upon parallel lines to those met with in nature, with the difference that we have records of many of the steps, and, of course, that the experiments have only been carried out for a very few generations.

Such experiments have already indicated some of the difficulties that are inseparable from ascertaining descent from experiment, for the wide range of polymorphism and the amount of reversion seen among batches of secondary hybrids could hardly have been foreseen. And such results must inevitably occur in nature, whatever the species. As regards improvement, the hybridist has an immense advantage over nature, in being able to select desirable forms as parents at every stage, instead of having his improvements swamped by a host of inferior forms.

DR. LINDLEY.

PROBABLY the most familiar name in the annals of Orchidology is that of Dr. Lindley, who for a period of about forty years was the historian of the Orchid family, and who may be said to have laid the foundations of its classification, at all events so far as tropical Orchids are concerned. It may, therefore, be interesting to give the substance of an appreciation by his successor, Prof. H. G. Reichenbach, which appeared as the preface to the second volume of that author's *Xenia Orchidacea*.

The author remarks:—Instead of introducing this volume with an account of my own labours and hopes, I prefer giving some reminiscences of a man, whose death, at half-past six o'clock on the morning of November 1st, 1865, falls within its period of issue—I mean of Lindley.

John Lindley found no useful work treating of the overwhelming majority of Orchids—namely, those with waxy pollen masses. Louis Claude Richard's excellent little memoir is essentially the starting-point of our knowledge of European Orchids. True, R. Brown's earlier celebrated elaboration of the Australian Orchids includes thirteen species with waxy pollen, referred to four "genera"; but there is a total absence of a proper appreciation of the important characters. In London our investigator had the not always willingly-accorded access to a small collection of specimens stuck down on paper, and the gradually increasing numbers of cultivated forms, mainly grown at his and Cattley's instigation, unfolded alluring malformations to the yet unprepared mind, such as those which even now cause us to look forward with such a suspense to the first flowering of many newly-introduced forms.

During the period of Lindley's earliest labours many leading men were striving to reach the same goal, and discover the key to a systematic arrangement of Orchids. Kunth, who was so fortunate as to participate in the teaching of the great master, L. C. Richard, unhappily united the Ophrydeæ and the Neottieæ, against the opinion of the latter. On the other hand, his researches into and separation of the Epidendroid genera were far more successful than the contributions of Blume in his *Tabellen* and *Bijdragen*. Neither the latter, nor Aubert du Petit-Thouars—for whom, however, we must conceive a liking if we take him according to his times—developed that accuracy of observation in the investigation of the contents of the anther which Lindley made his great object, and in which lies the greatest merit of his labours among Orchids. R. Brown soon retired from the competition.

Probably we should be right in saying that the self-dependent Lindley owed nothing to fortune. We might regard his residence in London as a

gift of fortune, but he went thither from Norwich on his own responsibility, provided with a single letter of recommendation from his amiable friend, William Hooker. To remain there, especially during the critical period of the arrangement of Sir Joseph Banks' library, was a sad task; and for a long time the young interloper found no favour, on account of his having introduced, in conjunction with the reserved Scot, Brown, the bold zoologist, Gray, and the still youthful Hooker, the natural system of the hated Frenchman, where the more numerous disciples of Linnæus had thought to pass their lives in the glory of pondering and admiring the great Swede.

Lindley possessed, moreover, extraordinarily fine powers of observation, very uncommon energy, a brilliant talent for drawing, an acute and truthful discrimination, and a happy, appropriate, even poetical style of description, which, however, from want of time, he never fully developed. This circumstance, too, was the cause of some shortcomings in his monographs. The more thoroughly he carried out his first examination, the more he considered himself justified in making it the basis of future work. Hence he freely took up his old descriptions, and even diagnoses, without alteration; and if the materials were insufficient, the results must be still more doubtful; but he was ever ready to defend himself with a repetition of his first views, if his statements were questioned. Much too honest not to acknowledge with pleasure his errors, if discovered by himself, he was not always inclined to be just respecting the representations of others. I remember well the case of Calanthe vestita, Wall., whose Epidendrous affinities he laughingly refused to study with me from fresh specimens, adding, with that humour so characteristic of him: "I will never look at that stupid plant again." It is a remarkable fact that Lindley permitted himself to be led by the gardening world, although he was honoured as the leader. It was my wish that the union of several genera, rendered necessary by the connecting links of new discoveries, should be done by himself, especially as I was perfectly satisfied that he recognised the necessity for it as fully as I did. "I should have all the amateurs up in arms against me," he replied. "They have had bother enough to get the existing names into their heads." He did not fall into the easy course of allowing those gentlemen to retain their own nomenclature.

I am inclined to believe that Lindley did not possess to a very high degree the gift of at once recognising what he had seen before—a gift that greatly facilities the labours of the systematist. "Let us examine it first," he used to say, when we were looking at anything—and who investigated with more pleasure? The mere sight of his favourite, always brightly shining, simple "Ross," was sufficient to raise his spirits. Happy as a child, and oblivious of all cares, he would prepare and draw the most

delicate flowers with the greatest joy—and he was always endeavouring to invest his representations with a certain grace. When finished, he would exclaim, with pride, "There!" And it was with real satisfaction, doubtless, that he used to say: "Ah! I am a dandy in my herbarium."

Overwhelmed with duties, he was seldom able to linger leisurely over his investigations. His scientific labours were carried on at intervals, when he was relieved from the pressure of the most uncongenial official duties.

Thus, Lindley spent forty of the best years of his life in uninterrupted devotion to our favourites, probably unsurpassed in perseverance by any monographer, and certainly equalled by few. During the time he, like so many other botanists, might have written scores of volumes, which is certainly a great recommendation in the eyes of those who estimate a scientific man's efficiency by the number and size of the books he may write; but this was an honour he willingly renounced. Before all, it should not be forgotten that Lindley never occupied such a position in life as would justify anyone in demanding scientific work from him. He never belonged to the favoured few, and nobody in wealthy England did aught for him in this respect, although the proud Britain willingly lulls himself into the belief that his country is also an Eldorado for scientific men. All that Lindley accomplished was the free gift of a man who, to the last, was engaged in the most severe exertions his vital powers would endure.

Thus Lindley passed away without realising his greatest wish—that of finishing a second complete elaboration of all Orchids—is the fault of circumstances which he had no power to alter, but which others might easily have controlled for him.

Traces of the mental exhaustion which saddened Lindley's last years are to be found in some of his last works. It was exceedingly painful to me when I went to him, the excellent man whom I had known ever since 1849, and found that he did not remember one of his favourites—he who shortly before was one of the most active workers; and he felt the full weight of the affliction, upon which he expressed himself with such touching eloquence to Bateman and myself. I still see him in the verandah at Turnham Green, as he appeared one October evening, when he called after me, bidding me not to forget to pay him a visit as often as I come to England. Except his household and physician, I was the last man who saw him. I was also present at the interment, when Bentham, J. D. Hooker, T. Thompson, and many others, paid him the last tribute of respect on November 5th.

We cannot tell how long science, how long botany will be pursued; but we may affirm that, so long as a knowledge of plants is considered necessary, so long will Lindley's name be remembered with gratitude.

The foregoing, though interesting as showing some of the personal relations between the two men, is very incomplete, even so far as Orchids are concerned, and Lindley was a voluminous writer on other subjects. A few further details may therefore be acceptable so far as our special subject is concerned, and these are partly taken from a long Obituary notice which appeared in the *Gardeners' Chronicle* (1865, pp. 1064-1065, 1082-1083), a journal which, in 1841, Lindley helped to found, and which he conducted with conspicuous ability for a period of nearly a quarter of a century.

John Lindley was born at Catton, near Norwich, on the 5th of February, 1799, being a descendant of a good Yorkshire family. His father was a nurseryman of considerable ability, and is known to gardeners as the author of *A Guide to the Orchard and Kitchen Garden*. He was educated at the Grammar School at Norwich, and shortly after leaving school, at the age of sixteen, he went to Belgium on business for Mr. Wrench, a well-known seed merchant of Camberwell. On his return he remained for a short time with his father, but owing to the latter's reverses in business, Lindley was left to fight for himself, and, being introduced by his friend William Hooker to Sir Joseph Banks, proceeded to London in 1818 or 1819, as Assistant Librarian to the latter. Sir Joseph recommended him to William Cattley, who was desirious of finding an Editor for his *Collectanea Botanica*, a work which was published in 1821, and which includes figures of Cattleya labiata, C. Loddigesii, and various others, which were among Lindley's earliest contributions to Orchidology. The work, it may be added, was not limited to Orchids.

In 1882 Lindley was appointed Assistant Secretary of the Horticultural Society of London, and soon afterwards commenced that long series of description of Orchids and other plants with which his name will always be associated. In 1824 he became associated with the *Botanical Register*, and soon became a regular contributor. Aëranthes grandiflora (t. 819), with the date Aug. 1824, is the first Orchid with the initials, "J.L." In 1829 (vol. xv.) he became Editor of the work, the title page being inscribed "Contributed by John Lindley." It was thus carried on until 1847, when it ceased publication, though his Orchid studies were soon continued in the three volumes of *Lindley and Paxton's Flower Garden*, which superseded *Paxton's Magazine of Botany*.

Besides the works above mentioned, Lindley published separately the following: *Orchidearum Sceletos*, a sketch of the Tribes of Orchids with a classified list of the genera (1826); *Sertum Orchidacearum*, a magnificent volume in folio, with beautifully-coloured plates, mostly drawn by Miss Drake (completed in 1838), and *Orchidaceæ Lindenianæ*, an enumeration of the Orchids collected in Columbia and Cuba, by M. J. Linden (1846). Of papers contributed to serial publications no fewer than nineteen are

enumerated in the Royal Society's Catalogue of Scientific Papers, ranging from 1827 to 1858, and including papers on Chilian Orchids; Cuming's South American Orchids; Notes on the genus Epidendrum; a Century of New Genera and Species of Orchids; Drege's Cape Orchids; Anatomy of the Roots of the Ophrydeæ; Mueller's Australian Orchids; Contributions to the Orchidology of India, and of West Tropical Africa; Wright's Cuban Orchids, and others, showing to some extent how great his activities were.

Lindley was the recipient of many honours. He was a member of most of the important botanical and horticultural societies of Europe, and his title of Doctor of Philosophy was conferred by the University of Munich in 1832. In 1857 he received the Royal Society's Medal, in recognition of his valuable contributions to scientific Botany, more especially to Orchidology, and in presenting the medal the President, Lord Wrottesley, alluded to the patience and skill that Dr. Lindley manifested in the dissection of the singularly complicated structure of the Orchids, his quick appreciation of affinities, and the lucidity of his style.

Dr. Lindley had been in bad health for some years before he died, partly as the result of overwork, but his death was unexpectedly sudden. He retired to rest as usual on Tuesday, October 31st, but early next morning was seized with a fit of apoplexy, from which he gradually sank.

Dr. Lindley's unrivalled Herbarium of Orchids, to which he devoted much of what may be termed his leisure time, was purchased by Government in 1865, and is permanently preserved in the Herbarium at Kew.

The Blue Orchid of Borneo.—The following note has just met our eye (*Gard. Chron.*, 1865, p. 1132): "In Mr. F. Boyle's book just published, *Adventures in Borneo*, which were accomplished in 1863, occurs the following passage (p. 60): 'For its flowers Bidi is deservedly famous; from thence have been obtained some of our finest Orchids and Delitra. The celebrated Blue Orchid was discovered accidentally by Mr. Bentley upon the bough of a tree which he had passed a hundred times. As he described it to us, the blossoms hung in an azure garland from the branch, more gracefully than art could design. The specimen then discovered is, I believe, the only one at present known, and both Malays and Dyaks are quite ignorant of such a flower, though they begin to be aware of the present mania for Orchids in England, and to distinguish the rarer species.' Can any of your readers inform me what are 'Delitra?' And what is meant by this unique Blue Orchid which Mr. Boyle alludes to as the celebrated?"—P.H.G.

As the question about the Blue Orchid has been a long time unanswered—we believe the title has since done duty for a whole series of articles in the *Boy's Own Paper*—without clearing the matter up, we suggest, Arachnanthe Lowii seen through coloured spectacles.—Ed.

OBITUARY.

CHARLES WINN.—The death is announced, on March 1st, on the eve of his eighty-eighth birthday, of Mr. Charles Winn, The Uplands, Selley Hill, Birmingham, a prominent Orchidist during the latter part of the nineteenth century. Early readers of the *Orchid Review* will remember the account of the Selly Hill collection, which appeared at pp. 261-264 o our second volume, and also the sale of the collection some two years later through Messrs. Charlesworth & Co. (*O.R.*, iv. pp. 256, 290). Mr. Winn was for many years a very enthusiastic Orchidist. As long ago as 1881

Fig. 11. CYMBIDIUM WINNIANUM.
(Raised by the late Mr. C. Winn.)

Reichenbach dedicated to him Masdevallia Winniana, which flowered in his collection, and five years later, when dedicating to him Cypripedium Winnianum, a hybrid raised by Messrs. James Veitch & Sons from C. villosum × Druryi, he alluded to Mr. Winn as "one of my very assiduous correspondents, who is so very famous for his splendid Masdevallias, among which the little-known gorgeous port-wine coloured M. Roezlii has often flowered."

Mr. Winn had a quite representative collection, containing several

thousand plants, which, he remarked to us, was his chief pleasure. He paid special attention to hybridisation, having at the time of our visit over two thousand seedlings of various kinds, besides those germinating or not yet potted up, and we remarked that "one block alone contained over twelve hundred nice little plants, which will probably yield some surprises in the future." Several interesting hybrids were raised in the collection. Cymbidium Winnianum was the second hybrid Cymbidium raised, and was described in the first issue of the present work (p. 22). Its parents were recorded as C. giganteum × eburneum, but it was afterwards found that it

Fig. 12. Dendrobium Nestor.
(Raised by the late Mr. C. Winn.)

came from another batch, and that C. Mastersii was the second parent. Dendrobium Nestor (Parishii × superbum) was another noteworthy thing, and it may be interesting to reproduce figures at the present time.

Among Cypripediums we may mention, C. Edith-Winn (Stonei × purpuratum), C. Cleopatra (Stonei × œnanthum superbum), C. The Duke (Stonei × barbatum), C. Ensign (Harrisianum × barbatum), C. Psyche (bellatulum × niveum), and C. Harrisander (Harrisianum × Sanderianum). Mr. Winn was one of the first to use C. Chamberlainianum as a parent,

and a curious instance of its habit of producing flowers for a long time in succession was recorded. A flower of the species was fertilised and the capsule matured and the seed was sown. Meantime the scape continued to flower, and the young seedlings were up before the last flower on the scape had expanded. Probably C. Maudiæ (callosum Sanderæ × Lawrenceanum Hyeanum) was the most beautiful hybrid raised by Mr. Winn, though the seedlings did not germinate until after the colledtion was sold. The source of some other hybrids may be traced to this collection.

Mr. Winn also crossed Cattleya Dowiana aurea with C. Warscewiczii, in order to prove the parentage of the handsome C. Hardyana, in which he was successful, though before the seedlings flowered it had also been raised in other collections. Failing health and inability to give the collection the same attention as formerly was the cause of its dispersal. Afterwards Mr. Winn found recreation in his garden, and also took up the cultivation of Show and Alpine Auriculas, which he exhibited at the meetings of the Midland Auricula & Primula Society at the Edgbaston Botanical Gardens.

THE CENTENARY OF THE ORCHID BASKET.—It may be interesting to recall that the present year is the Centenary of the basket method of Orchid culture—at all events the following, which appeared in the *Botanical Register* in 1817 (t. 220), is the earliest note on the subject that we know of :—

"The most successful mode of treating plants of this nature in these climates has been devised by Sir Joseph Banks, to whom we are obliged for the opportunity of representing the present specimen, which flowered in the hothouse of his garden at Smallberry Green, and had been invented by himself. The method he pursues is to place the plants separately in light cylindrical wicker baskets or cages, of suitable widths, of which the framework is of long slender twigs wattled together at the bottom and shallowly round at the side; the upper portion being left open that the plant may extend its growth in any direction through the intervals, and yet be kept steady in its station, the ends of the twigs having been tied together by the twine that suspends the whole to the woodwork of the stove. A thin layer of mould is strewed on the floor of the basket on which the rootstock is placed, and then covered lightly over with a sufficiency of moss to shade it and preserve a due degree of moisture, water being occasionally supplied." The subject is Aërides paniculatum, Ker, now known as Sarcanthus paniculatus, Lindl., a native of China. The Orchid basket has since been considerably modified, particularly in the way of using more durable materials for the framework, and in substituting wire for the twigs used to suspend the basket, but the principal is the same. It is also the earliest record of moss being used for surfacing that we know of.

ODONTOGLOSSUM CRISTATUM.

AN Odontoglossum from Glasnevin proves to be a form of O. cristatum, Lindl., which seems to have become rare in cultivation. It is a native of Ecuador, and was originally described from materials collected in the mountains of Paccha, in 1841, by Hartweg (Lindl. in *Benth. Pl. Hartw.*, p. 152). The species is characterised by the broadly deltoid lip, with large spiny crest, and the comparatively narrow, acuminate sepals and petals, which are blotched with dark brown on a yellow ground. It was introduced to cultivation by M. J. Linden, in 1867, and Reichenbach shortly afterwards described three varieties (*Gard. Chron.*, 1868, p. 1014), canaria, having bright yellow flowers, with a single blotch on each segment; Argus, yellow, with many purple frecks and speckles (a figure in *Ill. Hort.*, xvii. t. 21, shows only a few very large blotches), and Dayanum, which he suggested might be a hybrid, though a painting by Mr. Day (*Orch. Draw.*, xii. t. 26) shows a fairly normal form with a few spots on the segments (the ground colour recorded as represented too green through working by gaslight). Lehmann afterwards collected both flowering and fruiting specimens in the woods above Paccha, Zaruma, and Ayabamba. The so-called var. Lehmannii, Regel, belongs to O. cruentum, Rchb. f., whose history is given on page 95.—R.A.R.

PLEIONE REICHENBACHIANA, T. Moore.—It is curious how completely this beautiful little plant has been lost sight of. We do not remember to have ever seen it alive, and the only dried specimen at Kew is a shrivelled pseudobulb and a capsule sent by the Rev. C. Parish from Moulmein. It was originally discovered in the mountains of Moulmein by Col. Benson, who, in 1868, sent living plants to Messrs. James Veitch & Sons and to Kew, where they flowered simultaneously in November of that year The species was then described as Cœlogyne Reichenbachiana, Veitch & T. Moore (*Gard. Chron.*, 1868, p. 1210), and afterwards figured (*Bot. Mag.*, t. 5753). One of the reasons for its rarity may be that it grows in a rather out of the way locality, in which connection the following is interesting. Mr. John Day has appended the following MSS. note to a copy of the description preserved by him (*Orch. Draw.*, xii. p. 68):—"Mr. Boxall (Low's collector) writes from Moulmein in 1874: 'I have just returned from Moullotongue, one of the highest mountains in Burma, and on the top found Dendrobium Jamesianum, Pleione Reichenbachiana, and about fifty of the beautiful Cymbidium Parishii. It was very cold. I put on four flannel shirts and two thick coats, and then I shivered with cold.'" Such mountain plants would require a fairly temperate climate.—R.A.R.

CALENDAR OF OPERATIONS FOR APRIL.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE sudden changes of weather often experienced during April makes this month a trying period to all who have the management of a collection of Orchids. The many changes in the weather make it almost impossible to keep the temperatures of the houses regular, although shading and ventilation, if carefully attended to, go a great way in averting harmful fluctuations.

TEMPERATURES.—Now that the conditions of growth are more genial, the temperatures of the different houses may be raised five degrees higher than the figures given in the January Calendar, with the exception of the Cool house, which should be kept as near the same figures as possible. The health of the plants depend entirely on the conditions provided for them, therefore it is imperative that every attention should be given to this matter.

WATERING.—With the brighter days, and the increased power of the sun, the plants will require more water, both at the roots and in the atmosphere, but it will still require to be applied with discretion. Watering is often a difficult problem to amateurs, as individual plants, even of the same species and variety, vary considerably in the amount of water taken up. Some make the mistake of giving too little by over-cautiousness, while some go to the other extreme in deluging the plants with water. Again, it is most difficult to lay down a general law as regards the application of water to plants, because what one person would consider wet, another would consider dry, therefore it was quite obvious that an intermediate course between the two is much the best to pursue, although there is not much perspecuity in the matter.

VENTILATION, with the milder outside conditions, may be on a more liberal scale, and, with extended experience, I still adhere to the opinion that no plants can thrive indoors without fresh air, hence the necessity of recharging the houses daily with this, to my mind, essential factor. It must, however, be done judiciously, and with caution, as draughts are most harmful, especially at this particular season.

SHADING.—During this fickle month the blinds will require a great deal of attention, but there is not the least need to keep working them for every trifling gleam of sunshine. Keep them down on all changeable days and up whenever there is no fear of the sun scorching the foliage. At this particular season of the year, after an extremely dull and wet winter, the foliage of most Orchids is more apt to get scorched by sunshine than after a winter when clear bright weather predominates. It is best to err on the

side of a little too much shade than get the foliage permanently disfigured, but the plants should be gradually inured to stand a reasonable amount of light and sunshine. There are so many of these small details which all are essential to successful cultivation which make it hard for amateurs in particular to grasp. Some of these must be left unexplained, for no one can put a life's experience in a few articles.

CYPRIPEDIUMS.—Although at the time of writing there is, with me, a considerable amount of the later-flowering varieties of the winter-flowering section of these useful plants still in bloom, every means must be taken to repot any that require it immediately their flowers have faded. Plants starved for the want of new material seldom attain such vigour and health as plants which have had proper attention as they required it. It is much easier to keep even a bad-growing plant going than to nurse a sickly or starved one back to robust health. When all are repotted or gone through, it is advisable to overhaul and thoroughly clean them before putting them in their growing quarters. Each plant must have room to develop its growth, and, with proper care, should not require overhauling again till the autumn, when, previous to flowering, they will be the better for cleaning again.

CATTLEYAS AND ALLIED GENERA.—These beautiful Orchids command so much attention at the present day, and as their beautiful flowers are at hand the whole year round, they richly deserve it, although it appears there are some who do not succeed quite as well as they would wish in their cultivation. For the benefit of those amateurs who are starting their cultivation I will try and make my remarks on this particular family as explicit as possible. Those plants which have produced their flowers during the winter months should have attention as regards repotting (should it be necessary) as soon as it is observed they are about to push new roots. This is easily observed by a quantity of little pimples appearing upon the rhizome. The plant should be potted firmly, especially in the material now obtainable. A clean fibrous compost is essential, made up either of clean peat, A1 or osmunda fibre, with clean sphagnum moss. I use them in equal proportions, with the very best results. After repotting, water must be applied to the new compost with extreme care until the new roots get fairly into the new material, care being taken that the plant neither suffers from too little or too much water. C. Lawrenceana and others that are now pushing up their flower spikes should be kept in a fairly dry position, and given enough water to keep the compost moist, and prevent the pseudobulbs from shrivelling. If the different species and hybrids are taken in their respective seasons, and potted and treated as described, not much harm will accrue. It is harmful, and a severe check to any plant, to pot it at a season when it is not about to produce new roots.

LÆLIA ANCEPS and its varieties come under the last-mentioned group, and, as they require a long season of growth, all that are in need of new material should have attention at once. The compost mentioned for the preceding answers their requirements.

MILTONIA VEXILLARIA, with its hybrids, now about to push up their flower spikes, must have water whenever they become dry, though they must not receive it in such quantities as to destroy the young roots pushing from the base of the half-made pseudobulbs. Before the flower spikes attain any length it is advisable to thoroughly clean them in some safe solution of insecticide, which will be the means of eradicating any thrip or insect pests before their flowering season. At the same time any flower spikes entrapped in the leaves should be liberated.

DENDROBIUMS.—These plants were at one time most popular for making a display during the early spring months, but their popularity has declined considerably, though they comprise a most useful and beautiful class of plants. Many of those which produced their flowers early are now developing into growth, which will produce new roots when they attain a few inches in height. This is the best and proper season to supply fresh rooting material to any requiring it. They succeed in either pots, pans, or baskets, according to their character, and they delight in a clean fibrous compost of AI fibre and sphagnum moss. The water must pass readily away; therefore, whatever the receptacles used, they must be well drained. No water should be given until the new roots are seen to be seen pushing through the compost. The plants may be slightly sprayed overhead on bright days, but no water must be allowed to lodge in the new growths, or decay may set in which will be a severe check to the plant.

ONCIDIUMS.—O. varicosum, and other late-flowering species that are in need of new rooting materials may have attention as they start into growth, and are about to push new roots from their base. They succeed in the same compost as Odontoglossums, but they may receive a more liberal supply of half-decayed oak leaves in the compost. O. Marshallianum, O. concolor, and others that are developing flower spikes require a moderate supply of water to the roots. The warm end of the Cool house provides suitable quarters for them the whole year round. Oncidiums, when in full growth, and nicely rooted in the compost, delight in abundance of moisture both at the root and in the atmosphere. The usual precautions must be taken in watering newly-potted plants.

ODONTOGLOSSUMS AND ODONTIODAS.—Plants of these genera which from any cause are not in a satisfactory condition, may have new material given them when their new growths attain a few inches in length, using a compost as previously recommended. Nothing is gained by allowing any

plant to remain in a decomposed material, and plants repotted between seasons require extra attention as regards watering and shading. Odontoglossum citrosmum now pushing up flower spikes may have the water supply slightly increased.

Saccolabiums, Aërides, and Angræcums are Old World Orchids that may require new compost, and should be attended to at once, for, with the increased amount of daylight and sun heat, they will push new roots rapidly, and the new roots, being very succulent, are easily broken, so that it is advisable to get them done before the danger occurs. Sphagnum moss and fibre makes a suitable compost, and the majority thrive in the warmest house.

Renanthera Imschootiana is now pushing up its flower spikes, and may receive a more liberal supply of water to the roots. This plant, like many other members of the Vanda family, delights in plenty of light, but not direct sunshine, and a supply of fresh air at all times. Whilst making its growth a position close to the glass in an Intermediate house will answer its requirements.

Catasetums, Cycnoches, and Mormodes are quaint and distinct Orchids which are not often seen, but, owing to their remarkable and interesting flowers they deserve more extended cultivation. After a long decided winter's rest they are now commencing to grow, and must, therefore be no longer kept under resting treatment. Immediately young growths are seen to be pushing from the base of the pseudobulbs they should be repotted. They are best done annually, and a suitable compost is the one used for Cattleyas. The pots must be well drained, the plants potted moderately firmly, and the heavy pseudobulbs made secure to a stake to prevent them from rocking about. After repotting, water must be applied with extreme caution until the roots and young growth get fairly growing. Whilst making their growth they require a position close to the glass in the warmest house, and they should be rested in a house with Dendrobiums.

General remarks.—Enthusiastic Orchid growers will derive much pleasure during the present month in observing how quickly a number of different species respond to the increase of light and sun-heat. It is remarkable how nature responds to the warmth of spring, and, as the growing season for most of the plants has commenced, the essential conditions for their future welfare must be regularly and systematically carried out. Work will come on apace during the present month, and what with the potting, cleaning, and other matters which require attention, our hands will find plenty to do. Insect pests must be carefully watched for, as they do irreparable damage at this season, and if leaves of plants are to carry out their proper functions they must be kept clean and healthy.

PLEIONE YUNNANENSIS.

SEVERAL Chinese species of Pleione have been described during recent years, but they appear in cultivation very slowly, and the charming little P. yunnanensis, which was introduced about twelve years ago by Messrs. Sutton & Sons, Reading, is still the best known of them. It received a Botanical Certificate from the Scientific Committee of the Royal Horticultural Society in February, 1906. It is a native of Yunnan, and

Fig. 13. PLEIONE YUNNANENSIS.

was originally discovered by Mr. W. Hancock, F.L.S., in mountain pastures at Mengtse, at 7500 feet elevation, being afterwards met with also by Mr. A. Henry in the mountains to the north of the same place, at 5500 feet elevation. It blooms regularly in the early months of the year. As in the case of the autumn-blooming species, the flowers appear in advance of the leaves. Its general character is well shown in the annexed photograph, and it may be added that the sepals and petals are bright rose-purple in colour, and the lip paler, with some dark purple blotches on the front lobe and in the throat. Two or three other Chinese species have been introduced, but are at present very rare.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on March 13th, and produced a fair display of Orchids, the awards consisting of three medals, one First-class Certificate, one Award of Merit, and one Preliminary Commendation.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), William Bolton, C. J. Lucas, R. Brooman White, Walter Cobb, W. H. White, T. Armstrong, J. Charlesworth, Sir Harry J. Veitch, F. J. Hanbury, H. G. Alexander, Stuart Low, and R. A. Rolfe.

FIRST-CLASS CERTIFICATE.

LÆLIOCATTLEYA GENERAL MAUDE (Lc. rubens var. Lambeauiana × C. Hardyana).—A superb hybrid, combining some of the dwarf, compact habit of Lælia pumila with a very large and richly-coloured flower, about seven inches in diameter, and the sepals, petals, and lip of remarkable breadth and substance. The colour is bright rosy mauve with slightly darker veining, and the lip darker in colour with yellow veining in the throat. Exhibited by Messrs. Charlesworth & Co.

AWARD OF MERIT.

LÆLIOCATTLEYA SERBIA VAR. THE PRESIDENT (Lc. St. Gothard × C. Enid).—A very beautiful form, having broad, bright rose-coloured sepals and petals, and a ruby-crimson lip with some bright yellow in the throat. Exhibited by Messrs. Charlesworth & Co.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM EXULTANS var. Vulcan (excellens × Ossulstonii).—A very promising seedling, the flower being of excellent shape, and having broad, chocolate-red sepals and petals, tipped and margined with light yellow, and the lip white, with red-brown blotches in front of the yellow crest. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), was awarded a Silver Flora Medal for a group of well-grown Dendrobiums, raised in the collection. They included D. Helius (Wiganiæ × signatum), a pretty primrose yellow hybrid, tinged with pink on the petals; D. Gatton Jewel (Bartelsianum × melanodiscus), white with chrome yellow disc to the lip; D. Gatton Monarch (Lady Colman × nobile Harefield Hall), white with rosy lilac tips to the segment and a narrow disc to the lip; D. Lady Southgate (Lady Colman × chessingtonense), light primrose,

with the disc of the lip maroon and the apex purple; D. chessingtonense Gatton Park var., D. nobile Sanderæ, a pretty rosy form without a dark disc to the lip, D. Rubens elegans, and others.

Pantia Ralli, Esq., Ashtead Park, Surrey (Orchid grower Mr. W. H. White), sent Cattleya Apelles (Whitei × Mendelii var. King George V.), a pretty white form, with some purple on the lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including several promising Odontoglossums bearing their first flower, noteworthy among them being O. Bagdad, with a zone of purple spots on a white ground, and forms of O. Doris and exultans. Odontioda was represented by good forms of O. Diana, Madeline, Cupid, Henryi, Ashtoniæ, Charlesworthii, and Leeana. We also noted examples of Dendrobium Armstrongiæ and D. nobile virginale, Cypripedium Holdenii, C. Venus Orchidhurst var., with four flowers, Miltonia St. Andre, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, including good forms of Odontoglossum crispum xanthotes, Lambeauianum, Doris, illustrissimum, O. Phœbe with six racemes, Odontonia Magali-Sander var. xanthotes, Odontioda Brewii, Sophrocatlælia Meuse (Scl. Marathon × Lc. callistoglossa), a very richly-coloured and charming novelty, Brassocattleya Cliftonii magnifica and Bc. Vilmoriniana, Lælio-cattleya Clonia, Brassocattlælia Joan, Cattleya Enid, Lælia harpophylla with two racemes, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including Lycaste Skinneri Mrs. G. Hamilton-Smith, a very large and richly-coloured form, Læliocattleya Trimyra var. Charm, a pretty white form with orange-yellow throat to the lip, a good form of Odontoglossum waltonense, Cœlogyne flaccida with four racemes, Cattleya Snow Queen, C. Mary Sander and C. Cappei, the curious little Bulbophyllum mirum with fringed petals, B. Watsonianum, Leptotes bicolor, the pretty Eria marginata, and others.

Messrs. Flory & Black, Slough, sent Cattleya Suzanne Hye de Crom, a charming albino, a good form of Dendrobium nobile, and two Odontoglossums, one a well-coloured seedling O. crispum, the other a hybrid of uncertain parentage, heavily blotched with chocolate-purple on a light ground.

Messrs. Stuart Low & Co., Jarvisbrook, sent the richly-coloured Dendrobium Thwaitesiæ Veitch's var., Læliocattleya luminosa aurea, Lc. Godmanii (Lc. Ballii × C. Schrœderæ), a promising hybrid with fawn-coloured sepals and petals and a deep orange lip, Cattleya Trianæ alba, and Brassocattleya Cliftonii magnifica.

At the meeting held on March 27th the exhibits were rather more numerous, and the awards consisted of three medals, one First-class Certificate, and four Awards of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, R. A. Rolfe, R. G. Thwaites, E. R. Ashton, T. Armstrong, A. McBean, J. Cypher, J. Charlesworth, J. E. Shill, H. G. Alexander, W. Cobb, S. W. Flory, W. Bolton, C. J. Lucas, R. Brooman White, and W. H. Hatcher.

First-class Certificate.

Cypripedium Eurybiades The Baron (Hera Euryades × Alcibiades).—A magnificent form, the flower being of exceptional shape and substance. The dorsal sepal is white with an emerald green base and numerous large purple blotches, while the lip is dark mahogany-red, and the very broad, horizontal petals are heavily marked with the latter colour on a rosy yellow ground. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

Awards of Merit.

Brassocattleya Lady Jellicoe (Bc. langleyensis × C. Gaskelliana alba).—A very beautiful white flower, with a tinge of rose-colour in the sepals, and the throat of the lip orange yellow with a narrow purple line in front. Exhibited by Messrs. Armstrong & Brown.

Cattleya Enid var. Silver Queen (C. Mossiæ Reineckeana × Warscewiczii Frau Melanie Beyrodt).—A beautiful pure white form, with a deep yellow throat and some yellow lines in front. Exhibited by Messrs. Charlesworth & Co.

Odontioda St. Quentin (Oda. Zephyr × Odm. Wiganianum).—A large and beautiful hybrid, having canary-yellow flowers with broad segments, each with a cluster of red-brown blotches below, and the lip with a zone of the latter colour in front of the yellow crest. Exhibited by Messrs. Flory & Black.

Sophrocatlælia Meuse var. General Nivelle (Scl. Marathon × Lc. callistoglossa).—A charming thing, the flowers being of fine shape, the sepals and petals light carmine-rose, and the lip darker, with some yellow lines in the throat. Exhibited by Messrs. Charlesworth & Co.

Mrs. Bischoffsheim, The Warren House, Stanmore (gr. Mr. H. Haddon), showed Brassocatlælia Queen of the Belgians Warren House var. (Bl. Veitchii × C. Mendelii), a well-shaped rosy-mauve flower with some yellow in the throat of the lip.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed three seedlings, Odontioda warnhamensis (Oda. Cecilia × Odm. armainvillierense), a well-shaped dark bronzy-red flower, and a broad Pescatorei-like lip with a white apex; Odontoglossum Delta (Rolfeæ ×

Othello), a dark flower most resembling the latter, and O. ardentisper, a handsomely blotched form.

William Evans, Esq., Knighton Lodge, Leicester, sent three plants of Dendrobium nobile.

Baron Bruno Schröder, Englefield Green (gr. Mr. J. E. Shill), sent three plants of a good Brassocattleya.

Messrs. Charlesworth & Co., Haywards Heath, sent a choice group of well-grown plants, including the handsome Brassocattleya Cliftonii magnifica, six good plants of Miltonia Bleuana, Zygocolax Charlesworthii, Odontioda Orion (Odontoglossum Jasper × Oda. Charlesworthii), a dark red form, with yellow crest to the lip, and several other Odontiodas, a fine Odontoglossum armainvillierense xanthotes with a spike of eighteen flowers, a charming form of Sophrocatlælia Meuse, more purple than the one certificated, Læliocattleya Percy-Scott, Lc. Thea, and a rose-coloured form of Dendrobium Kingianum (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a good group of well-flowered Dendrobiums, including a beautiful form of D. xanthocentrum, D. nobile murrhinianum and Perfection, D. Cybelle nobilior, D. Ainsworthii splendidissimum, good forms of D. Rubens, D. nobile × Rainbow, and D. Rolfeæ × Salteri, a charming thing, most resembling the former in general character (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a good group, including fine forms of Cymbidium Alexanderi, C. A. roseum, C. Gottianum, the richly-coloured Odontioda Diana, and other brightly-coloured forms, some good forms of Odontoglossum crispum, and a few blotched hybrids in well-grown examples, Cattleya Brenda and Schrœderæ, Brassocattleya Bianca, Læliocattleya Beatrice, and a few good Cypripediums (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged an interesting group, including two pretty forms of Odontoglossum Corona (Doris × armainvillierense), O. crispum memoria Lord Kitchener, a very promising seedling, with prettily blotched flowers, Odontioda Cereus Orchidhurst var. (Odm. excellens × Oda. Charlesworthii), blotched with Indian red on a light yellow ground, two good forms of O. Henryi, and others.

Messrs. Flory & Black, Slough, showed a good plant of Læliocattleya Invincible var. Orama, a richly-coloured variety.

Messrs. Sander & Sons, St. Albans, staged an interesting group, including Cymbidium grandiflorum, good forms of C. Alexanderi, Læliocattleya callistoglossa, Lc. Joy Sander (C. Schrœderæ × Lc. luminosa), a flame-coloured flower with crimson lip, Miltonia Bleuana var. Gen. Joffre, a large blush white form with rose-coloured base to the petals and lip, Brassocattleya Wotan var. callistoglossa, a large, light-coloured form, Bc.

Vilmoriniana, the rare Dendrobium tetragonum, a few good Cattleyas, and others.

Manchester & North of England.

At the meeting held at the Coal Exchange, Manchester, on March 1st, the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. J. Ellwood, J. Evans, P. Foster, A. R. Handley, A. J. Keeling, D. McLeod, W. Shackleton, H. Thorp, and H. Arthur (Sec.).

First-class Certificates.

Læliocattleya Linda (Lc. Arachne × C. Dowiana aurea), a well-set flower of even colour; from R. Ashworth, Esq.

Odontioda Gratrixiana (Oda. seedling × O. Bradshawiæ Cookson's var.), a large flower with brilliant markings; from S. Gratrix, Esq.

Awards of Merit.

Cymbidium Sybil Conyngham var. (Pauwelsii × eburneum), and Odontoglossum loochristiense Conyngham var.; from Dr. Craven Moore.

Cypripedium John Clarke var. compactum, and Odontioda Dorothy; from P. Smith, Esq.

Odontioda Madeline var. Evansiæ; from R. Ashworth, Esq.

Odontoglossum Mary (amabile × crispum Franz Masereel); from S. Gratrix, Esq.

Cymbidium Alexanderi var. Yvonne; from J. Walker, Esq.

Cypripedium Iona Carter Place var.; from T. Worsley, Esq.

Odontioda Henri; from Messrs. Armstrong & Brown.

Awards of Appreciation.

Odontoglossum James O'Brien (Duvivierianum × harvengtense), 1st class, and O. Distinction, 2nd class; from R. Ashworth, Esq.

Odontoglossum eximium Papillon, 1st class; from Dr. Craven Moore.

Odontoglossum Fabia (L'Aiglon × eximium); from Messrs. Armstrong & Brown.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a very fine group, in which Odontoglossums and Odontiodas were particularly well represented.

Silver Medals were awarded to Messrs. Cypher & Sons, Cheltenham, and Messrs. J. & A. McBean, Cooksbridge, for fine groups, the former consisting of choice Cypripediums.

Interesting exhibits were staged by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson); S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); Tom Worsley, Esq., Haslingden (gr. Mr. T. Wood); John Walker, Esq.,

Pendleton; Mr. J. Howes, gardener to the late Wm. Thompson, Esq.; Messrs. Hassall & Co., Southgate; Messrs. Armstrong & Brown, Tunbridge Wells; Messrs. Sander & Sons, St. Albans; Messrs. Charlesworth & Co., Haywards Heath, and Mr. W. Shackleton, Bradford, several of which are included in the above list of awards.

At the meeting held on March 15th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, D. McLeod, W. Shackleton, S. Swift, H. Thorp, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontonia Magali-Sander xanthotes Ashworth's var., flowers with white ground, beautifully marked, with lemon yellow, and Læliocattleya Beatrice var. Ashworthiæ (C. Schrœderæ × Lc. callistoglossa), a large flower, of even colour, with round intense crimson lip; from R. Ashworth, Esq.

Cattleya Cowaniæ alba var. Princess (C. Mossiæ Wageneri × intertexta Juliette), a well-shaped white flower, with orange yellow markings in the throat of the lip; Cattleya Enid alba var. Fairy Queen (Mossiæ Reineckeana × Warscewiczii Frau Melanie Beyrodt), a very fine flower, over seven inches across, the petals three inches wide, and the lip broad, with lemon yellow throat and heliotrope lines at the base; from P. Smith, Esq.

AWARDS OF MERIT.

Odontioda Red Cross var. Scarlet Pimpernel, Oda. keighleyensis var. magnifica, and Odontoglossum Louis var. splendens (Ossulstonii × Pescatorei Charlesworthii); from P. Smith, Esq.

Dendrobium Cybele West Point var., and Dendrobium Atherton (Rubens grandiflorum × Cybele); from S. Gratrix, Esq.

Cypripedium Perseus (Lady Dillon × Alcibiades illustre); from W. R. Lee, Esq.

AWARDS OF APPRECIATION.

Odontoglossum Bagdad (Emperor of India × Jasper), 1st class, and O. eximium var. rotundiflorum, 2nd class; from R. Ashworth, Esq.

Odontoglossum General Maude, 1st class; from S. Gratrix, Esq.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a very fine group, in which Odontoglossums and Odontiodas were conspicuous, with other good things.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a fine group, including some profusely-flowered Dendrobiums, with a number of good Brassocattleyas, Læliocattleyas, Cymbidiums, and others.

Interesting exhibits were staged by Philip Smith, Esq., Ashton-on-

Mersey (gr. Mr. E. Thompson); S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); W. R. Lee, Esq., Heywood (gr. Mr. C. Branch); Messrs. Sander & Sons, St. Albans; Messrs. J. & A. McBean, Cooksbridge, and Messrs Hassall & Co., Southgate, several of which appear in the award list.

ODONTOGLOSSUM CRUENTUM, Rchb. f.—In a note on Odontoglossum cristatum (p. 83) mention is made of a so-called O. cristatum var. Lehmannii, Regel, which really belongs to O. cruentum, Rchb. f., and it may be interesting to give the history of the latter very rare species. O. cruentum was described and figured in 1873 (*Rchb. f. Xen. Orch.*, ii. p. 174, t. 174, fig. 1), from materials collected at Chuquibamba, Ecuador, by Gustav Wallis, the figure being prepared from a sketch by the latter, and for a long time nothing further seems to have been known about it. It was in 1890 that the figure of the so-called O. cristatum var. Lehmannii was figured (*Regel Gartenfl.*, xxxix. p. 59, t. 1315, fig. 2), the plant, which flowered at the Royal Botanic Garden, Berlin, having been received from Consul Lehmann, of Popayan (who probably obtained it from Ecuador). As to the name given by Regel, it is difficult to see how a plant with two small oblong calli on the lip came to be referred to O. cristatum with its large spiny crest, for the two are quite distinct in other respects. In 1892 a dried specimen of the same Odontoglossum was sent to Kew by Messrs. Charlesworth, Shuttleworth & Co., but without any record of locality, and in 1899 it flowered at the Royal Botanic Garden, Edinburgh, and at Glasnevin, in both cases being submitted for name. The latter plant is said to have been sent to Glasnevin by Sir Trevor Lawrence. The flowers are rather smaller than in O. cristatum, and the segments somewhat obtuse, the ground colour being yellow, with some red-brown blotching on the segments, and the lip with a pair of short oblong calli. It is more nearly allied to O. Lindleyanum. It is very rare in cultivation at the present time.—R.A.R.

DENDROBIUM WARDIANUM CANDIDUM.—Flowers of this chaste and beautiful albino are sent by Mr. James Hudson, Gunnersbury House, Acton, where it is well grown. The variety was introduced by Messrs. Hugh Low & Co., Upper Clapton, over forty years ago, and was described by Reichenbach (*Gard. Chron.*, 1876, i. p. 460), the author remarking: "Among the rich collections introduced by Mr. Stuart Low was one plant whose flowers are very large, but have not the violet-purplish tip to the six parts of the perigone. This makes a very striking appearance. It has just flowered in the collection of Edwin G. Wrigley, Esq., of Broadoaks, Bury, Lancashire." Other plants have occasionally appeared in importations of the species from Burma.

ORCHID NOTES AND NEWS.

TWO Meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during April, on the 11th and 24th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The alteration of the first meeting from Tuesday to Wednesday is on account of the Easter Holidays.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on April 5th and 19th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

SANDERS' LIST OF ORCHID HYBRIDS.—We have received a copy of the Addenda for 1915, 1916 of Messrs. Sanders' List of Orchid Hybrids, arranged uniformly with the earlier work, and bringing the list practically up to date. It occupies 36 pages, nearly half being devoted to the additions, and the rest to their arrangement under their parents.

CYMBIDIUM INSIGNIGRINUM.—An interesting hybrid from C. insigne and C. tigrinum, raised in the collection of G. Hamilton-Smith, Esq., Northside, Leigh Woods, Bristol, of which the first flower is sent. The shape most favours C. tigrinum, and the colour of the sepals and petals is light greenish yellow, with a tinge of pink, and a few spots below, while the lip is heavily spotted with brownish crimson.

A curious Cypripedium flower is sent from the collection of F. J. Handbury, Esq., Brockhurst, East Grinstead. It is a seedling from C. Actæus × Boxallii. There are two lateral staminodes, and the petals are represented by two half lips, while the normal lip is missing.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

C.W.S.—Epidendrum Spondiadum, Rchb. f., a rare Jamaican species. Figured at *Bot. Mag.* t. 7273. Polystachya, near P. affinis, Lindl. To be further compared.

H.R.C., and C.H.L.—Many thanks. Next month.

G.H.S.– The other note is unavoidably postponed.

R.W.R.—Letter follows.

J.W.—The named varieties of Cattleya Trianæ are almost innumerable.

The Orchid Review

VOL. XXV. MAY, 1917. No. 293.

OUR NOTE BOOK.

THE abandonment by the Royal Horticultural Society of its great Spring and Summer Shows, as announced at page 47, was probably unavoidable under the circumstances, but will leave a great blank in the horticultural functions of the year, and so far as the former Show is concerned one must go back for a period of thirty years to find a similar condition of things. In 1887 the Society was in difficulties under what has been called the South Kensington regime, but in the following year they broke away from the old traditions and, with a return to the Society's legitimate business of horticulture, organised a two days' Spring Show, on Thursday and Friday, May 17th and 18th, in the Middle Temple Gardens, on the Thames Embankment, which formed the turning point in the Society's history.

The *Gardeners' Chronicle* at the time remarked: "The bold venture of the Royal Horticultural Society in holding a large Exhibition in the City deserved more success than the weather at first seemed likely to permit. Ultimately, however, the tents became filled with visitors, and a grand success seemed likely to be scored, particularly as the show remained open till Friday." And, respecting Orchids, it added: "The greatest triumph is secured in the exhibition of Orchids, the best since the famous exhibition of the first Orchid Conference." In the report of the Show itself it remarked: "Of all the sections of the Show probably these plants formed the most attractive feature, at all events to many people, completely occupying one side of the centre table of the wide tent. Rarely, indeed, does such a feast of Orchids present itself to the public gaze. Sir Trevor Lawrence, Burford Lodge, Dorking, showed a collection of remarkable interest. The plants were in perfect health, and many of them were extremely rare and valuable, as, for instance, Spathoglottis Kimballiana, which may be compared to a yellow Phalænopsis, and Lissochilus giganteus, the cut spike of which was shown, Cattleya Lawrenceana, Odontoglossum Cervantesii, rose-coloured variety. Many Masdevallia species were shown, especially fine being M. Harryana majus, brilliant scarlet, and M. H.

cœrulescens." But we must omit a lot of the details as to the composition of this fine exhibit.

As regards other exhibitors, we find that Baron Schröder, The Dell, Egham, contributed a magnificent collection of remarkably well-grown pieces, laden with flowers, and he took the first place in the competing groups —and justly so. Major Lendy took first for twelve cut spikes of bloom. H. M. Pollett, Esq., Fernside, Bickley, was awarded first for a good group of Odontoglossums, and also showed a grand lot in the miscellaneous section. An extensive group was sent by Mr. F. Sander, St. Albans, in which were a great variety of forms of Odontoglossum crispum. Messrs. Hugh Low & Co., Clapton, and Mr. Cypher, Cheltenham, sent good groups, and a few Orchids, chiefly Cattleyas arranged with Adiantum, were shown by Messrs. H. Page & Sons, Grove Nursery, Teddington.

The Show was an unqualified success, and, after being extended to three days in 1894, was continued annually without a break for twenty-four years. It was suspended in 1912, the year of the Royal International Horticultural Exhibition, and afterwards resumed on the site of the latter in the grounds of the Royal Hospital, Chelsea, and continued down to May of last year. We may hope to see a continuation of the event in all its old magnificence when the present horror has passed away.

An enormous transformation has been effected in the composition of our collections in the space of thirty years. Hybrids were then comparatively rare, while to-day they form the predominating element in most of the groups staged. It is curious to reflect that there were then no Odontoglossum hybrids of artificial origin, and that it was not until fourteen years later that the first Odontioda appeared at the Temple, and made a sensation which we never remember to have seen equalled. In fact Cochlioda Nœtzliana, the common parent of this brilliant race of Cool Orchids, was unknown until 1890, when it appeared in undeveloped condition under the name of Odontoglossum Nœtzlianum, and received a Botanical Certificate from the R.H.S.

Speaking of Exhibitions reminds us that under normal conditions next year would have been the date of the Ghent Quinquennial Show, an event which dates back for a period of over a century, but whether it can now be held is more than doubtful. This is not the place to assess the cause, but the lapse of both events can be traced to the same original crime. The world must see to it that any repetition of such a disaster becomes impossible in the future.

MR. JOHN DAY'S ORCHID DRAWINGS.

THE following interesting account of Mr. John Day's fine collection of Orchid Drawings, which has been frequently mentioned in our pages, is taken from the *Kew Bulletin* (1906, pp. 177-179) :—

In September, 1902, Mrs. Wolstenholme, of High Cross, Tottenham, sister of Mr. John Day, well-known during his life-time as an amateur grower of Orchids, presented to Kew the very valuable collection of drawings of cultivated Orchids made by that gentleman. Mrs. Wolstenholme had previously bequeathed the collection to Kew, but felt that she was delaying its usefulness by keeping it in her possession. As delivered at Kew, it consisted of 53 oblong books of about 90 pages each, with a complete index. The books have since been bound in 17 volumes, and they contain approximately 3,000 coloured drawings, with about 500 in sepia, besides copious original notes and a large number of cuttings from the *Gardener's Chronicle* and other papers relating to Orchids. We have not succeeded in finding any published biography of the author, and only a few scattered facts concerning his life and his collections. But Mrs. Wolstenholme has communicated the following particulars :—

John Day was born on February 3rd, 1824, in London, where his father, a city merchant, resided until 1840, when the family removed to a pleasant old house in Tottenham. After his father's death in 1851 he continued to live at the old house, and from there he married in 1853, but, losing his wife in 1857, he sold the old home, and joined Mr. and Mrs. Wolstenholme at High Cross, Tottenham, the present residence of Mrs. Wolstenholme. Thither, in 1858, he removed his large collection of cultivated ferns, to which he had for some years devoted much attention. Shortly afterwards he took up the cultivation of Orchids. He built suitable houses, and soon filled them with valuable plants. In course of time his collection became one of the richest and most famous of the period. Then his health broke down, and he visited the Mediterranean countries, which gave him a zest for travelling to more remote places, and he subsequently went to India, Ceylon, Brazil, and Jamaica. In 1881, previous to these longer journeys, his collection of Orchids was brought to the hammer, and realised £7,000. Three plants of Cypripedium Stonei var. platytænium fetched over £400. Subsequently he again became a collector of living Orchids, chiefly of rare and curious kinds. But latterly he devoted much attention to the dried ferns he had collected on his travels. He died on January 15th, 1888, and his second collection of Orchids was sold in May of the same year, when a small plant of the Cypripedium mentioned above brought the sum of £159 12s.

For some years Mr. Day employed Mr. C. B. Durham, a miniature painter, who exhibited largely at the Royal Academy and Suffolk Galleries between 1828 and 1858, to make coloured drawings of Orchids, and from a note in the Kew correspondence there were 300 drawings by this artist made at a cost of £3 each. This collection, described as a very fine one, was sold by auction after Mr. Day's death, and is now the property of Mr. Jeremiah Colman, of Gatton Park, Surrey.

We have mentioned Durham, because his name occurs here and there in Mr. Day's books, appended to a flower or a plant, and because he appears to have given Mr. Day lessons in drawing. In Book 14, p. 10, for instance, there is the note, appended to a drawing of Cattleya bicolor: "My 9th lesson." At p. 66 of the same book is a coloured drawing of Cattleya Schilleriana splendens, and the following note: "Drawn by Mr. Durham, June, 1862; the first drawing he ever did here. This from the plant bought at Mr. Allen's sale at Stevens' in June, 1860, and the subject of Mr. Durham's beautiful drawing at Vol. vii. p. 11."

In 1863 Mr. Day himself began sketching, the first sketch being dated January 10th, and he continued to make drawings up to within a few weeks of his death, January 15th, 1888, the last but one bearing the date November 12th, 1887, the last being undated. All of the earlier ones are in ink, but in many cases he afterwards added coloured sketches, always giving the date when done. The earliest sketches are somewhat rough and diagrammatic, though botanically correct; but he improved rapidly, and his later work was admirably executed, both as to drawing and colouring. Day must have been very industrious at that period, for, by the middle of February, 1864, he was half-way through his seventh book, where (page 45) there is a coloured figure of Cypripedium purpuratum, with the following note: "This is the first drawing I attempted in colours, using Gerty's paint box. I am sufficiently satisfied with the result to buy a box for myself." His satistaction was quite justifiable, and his perseverance was soon rewarded with great success. Practically all he did after this was coloured. In December, 1882, he wrote to Kew applying for a pass of admission before the general public, in order that he might make drawings of the "smaller, insignificant Orchids." This was granted, and, writing again in 1866, he mentions that he had drawn at least 70 that he had not seen elsewhere. His last Kew drawing is dated October 29th, 1887. From time to time he presented living plants to Kew.

The fact that John Day's collection contains drawings of a large number of the types of Reichenbach's species adds greatly to its value, as most of them are not otherwise represented at Kew, and probably in no other herbarium, except the Reichenbachian shut up at Vienna, which, according to the terms of Reichenbach's testament, will not be accessible until 1914.

CYMBIDIUM INSIGNE AND ITS HYBRIDS.

THE introduction of the handsome Cymbidium insigne, little over a dozen years ago, seems likely to revolutionise the genus, so far as its garden history is concerned, for its attractive colour, coupled with a bold and striking habit, were just the characters wanted by the hybridist, and the result has been that it has now been crossed with almost every species of note, and with the existing hybrids, giving a series of highly decorative garden plants of the easiest possible culture, which are briefly summarised in the following article.

Our first knowledge of the species dates from September, 1901, when a dried specimen, that had been collected in Annam by G. Bronckart, was brought to Kew for determination by the late Mr. George Schneider, accompanied by a fine painting. A note attached to the specimen described it as a terrestrial Orchid found growing along ravines and in sandy soil at 4000 to 5000 feet elevation, the spikes 3 to 4½ feet high, and bearing ten to fifteen flowers. It was then named C. insigne, and afterwards described (Rolfe, in *Gard. Chron.*, 1904, i. p. 387). The original specimen is preserved at Kew, also a copy of the drawing. Later on it was again met with by W. Micholitz, when exploring the heights of Annam for Messrs. Sander & Sons in 1904, and a few living plants were sent home, one of which flowered and received a First-class Certificate from the R.H.S. in February, 1905, under the name of C. Sanderi, under which name it was then described and figured (O'Brien, in *Gard. Chron.*, 1905, i. p. 115, fig. 49). Shortly afterwards the species was introduced in quantity, and soon became extremely popular.

With Messrs. Sander's importations of Cymbidium insigne came home a second species, which was described as C. Schrœderi (Rolfe, in *Gard. Chron.*, 1895, ii. p. 243), being dedicated to the late Baron Sir H. Schröder. It is allied to C. Lowianum, but is dwarfer in habit, and has rather smaller flowers, and the lip striped with brown on the side lobes. It is now known to grow in quantity with C. insigne, resulting in a series of puzzling but very interesting natural hybrids, as will be seen presently.

Curiously enough, the hybrid between these two species was first recorded as of artificial origin, being exhibited at a meeting of the R.H.S. in January, 1911, by J. Gurney Fowler, Esq., Glebelands, South Woodford, under the name of C. glebelandense (Schrœderi × insigne). It was described as an interesting hybrid, having greenish white sepals and petals with a faint rose tinge, and the lip dotted with rose in front, and with some darker lines on the side lobes (*O.R.*, 1911, p. 51). We afterwards had the

good fortune to see other seedlings from the same batch (*O.R.*, 1916, p. 94), confirming the origin of the original plant.

A month later a beautiful hybrid from C. insigne was exhibited at a meeting of the R.H.S., by Messrs. Th. Pauwels & Cie., Meirelbeke, Ghent, and received an Award of Merit under the name of C. Lawrenceanum (insigne × Lowianum concolor). It had cream-coloured sepals and petals, flushed with rose at the margin, and the lip with some reddish rose suffusion in front and a few small spots on the side lobes (*O.R.*, 1911, p. 87). This hybrid afterwards seems to have received the name of C. Pauwelsii, for in March, 1912, it received an Award of Merit from the Manchester Orchid Society under this name, and subsequently a First-class Certificate, when exhibited by Col. John Rutherford, M.P. (*O.R.*, 1912, pp. 158, 187).

In March following two other hybrids of C. insigne appeared, each of them receiving an Award of Merit from the R.H.S. (*O.R.*, 1911, p. 119). These were C. Alexanderi (Veitchii × insigne), from Lt.-Col. Sir George L. Holford, K.C.V.O., and C. Gottianum (eburneum × insigne), from Messrs. Sander & Sons. The first-named is a secondary hybrid, and has since proved to be extremely variable, yielding some very pretty light yellow and rosy forms, in addition to those with a white ground colour as in the original.

In 1912 two handsome additions appeared. Cymbidium Schlegelii (insigne × Wiganianum) flowered with Messrs. J. & A. McBean, Cooksbridge, in February, and received an Award of Merit from the R.H.S. (*O.R.*, 1912, p. 86), and in the following October they also flowered C. Doris (Tracyanum × insigne), a particularly fine thing, which received a First-class Certificate (*O.R.*, 1912, p. 344).

In March, 1913, Cymbidium J. Davis was exhibited by J. Gurney Fowler, Esq., at a meeting of the R.H.S., and received an Award of Merit (*O.R.*, 1913, p. 93), but as the parentage was given as C. Schrœderi × insigne it is a variety of the earlier C. glebelandense; indeed, we believe it was a seedling out of the same batch.

In 1914 there were several accessions to the list, all of which were exhibited at meetings of the R.H.S. First came C. Coningsbyanum (grandiflorum × insigne), from the collection of G. Hamilton Smith, Esq., which received an Award of Merit from the R.H.S. on January 13th (*O.R.*, 1914, p. 58). On February 24th a hybrid called C. Iona, with the same parentage, was exhibited by Messrs. Armstrong & Brown (*O.R.*, 1914, p. 86), which thus becomes a synonym. On February 10th Cymbidium Dryad (insigne × Parishii Sanderæ) was exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O., and was described as a large and beautiful hybrid, having blush white sepals and petals, and numerous large red-purple spots

on the lip (*O.R.*, 1914, p. 95). Cymbidium amabile (Lowii-Mastersii × insigne) was exhibited by Messrs. Sander & Sons on April 7th (*O.R.*, 1914, p. 147). Lastly, C. Venus (Holfordianum × insigne) was exhibited by Messrs. Stuart Low & Co., Jarvisbrook, at the Chelsea Show on May 19th, and received an Award of Merit (*O.R.*, 1914, p. 181).

In February, 1914, a fine natural hybrid of C. insigne was exhibited by G. Hamilton Smith, Esq., under the name of C. Cooperi (*O.R.*, 1914, pp. 94, 131). It was part of a plant which had been obtained from Messrs. Sander & Sons, and is the natural hybrid mentioned as having bloomed in the previous year out of an importation in which C. insigne and C. Schrœderi were found intermixed (*O.R.*, 1913, p. 308). It was most like C. insigne in habit, but the flowers more suffused with yellow. On April 15th, 1914, another natural hybrid from the same importation was exhibited by G. Hamilton Smith, Esq., which was recorded as C. glebelandense var. roseum (*O.R.*, 1914, pp. 131, 149), this having a dwarfer, arching scape and smaller, more rosy flowers, thus being much nearer C. Schrœderi in habit though not in colour. In March, 1916, Messrs. Sander & Sons exhibited another natural hybrid from the same importations under the name of C. Mavis (*O.R.*, 1916, p. 90), this having also more of the habit of C. Schrœderi, with brown striping in the segments. All have since been referred to varieties of the original C. glebelandense. It is, however, possible that some of them may be secondary hybrids, a point which it would be interesting to clear up.

In January, 1915, Cymbidium Castor (Woodhamsianum × insigne) flowered in the collection of G. Hamilton Smith, Esq., being described as most comparable with C. insigne, and having light yellow flowers, with numerous red-purple stripes on the lip, passing into a few spots in front (*O.R.*, 1915, p. 36).

A month later C. Queen-of-Gatton (insigne × Lady-Colman) was exhibited from the collection of Sir Jeremiah Colman, Bart. (*O.R.*, 1915, p. 84). This also proved very variable, some two dozen plants being exhibited at a meeting of the R.H.S. held in January, 1916, showing much variation in colour (*O.R.*, 1916, p. 54).

About the same time C. Butterfly (Lowio-grandiflorum × insigne), flowered in the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., and proved to be remarkably variable. Eight forms were sent to show the amount of variation, these ranging from cream to light yellow in the ground colour, more or less veined with rose-pink in the sepals and petals, with the crimson markings on the lip in some cases in confluent lines, in others more in the form of individual spots (*O.R.*, 1916, p. 81).

In January, 1916, two novelties appeared at the R.H.S. meetings, both secondary hybrids of C. insigne. On January 11th Messrs. Sander & Sons

exhibited C. Albatross (Gottianum × grandiflorum), a hybrid retaining much of the insigne character (*O.R.*, 1916, p. 52), and a fortnight later Messrs. Hassall & Co. staged C. Diana (Pauwelsii × Veitchii), in this case both parents being secondary hybrids (*O.R.*, 1916, p. 55). At the earlier meeting C. Capella was also exhibited from the collection of G. Hamilton Smith, Esq., the parentage being recorded as C. Wiganianum × insigne (*O.R.*, 1916, p. 51), which would make it a form of C. Schlegelii. A year later, however, it was exhibited by Messrs. Hassall & Co. with the parentage C. Wiganianum × Pauwelsii (*O.R.*, 1917, p. 43).

Coming to the present year, we find that several additions have already been recorded. C. Corona (Lowianum × Schlegelii) flowered in the collection of G. Hamilton Smith, Esq. (*O.R.*, 1917, p. 4), and most resembles the former parent, with some reddish streaks in the sepals and petals, and the zone of colour on the lip more broken up into spots. Shortly afterwards the same cross was exhibited by Messrs. Hassall & Co. under the name of C. Beatrice (*O.R.*, 1917, p. 43). C. Sybil (eburneum × Pauwelsii), flowered both with G. Hamilton Smith, Esq., and with Messrs. Hassall & Co., and showed a good deal of variation (*O.R.*, 1917, p. 36). Messrs. Hassall & Co. also exhibited C. Moira (Tracyanum × Pauwelsii) at the R.H.S. meeting held on January 16th (*O.R.*, 1917, p. 43). C. Chaffinch (Gottianum × Doris) was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on January 30th, and has a blush-coloured ground colour, prettily spotted with red on all the segments (*O.R.*, 1917, p. 44). Lastly, we have C. insignigrinum, raised in the collection of G. Hamilton Smith, Esq., from C. insigne and C. tigrinum, a promising hybrid, most favouring the latter, and having a light greenish yellow ground colour, tinged with pink, and the lip heavily spotted with brownish crimson (*O.R.*, 1917, p. 96).

ODONTIODA ROSEFIELDIENSIS.—The combination of the orange-scarlet Cochlioda Nœtzliana with the bright yellow and brown Odontoglossum triumphans has produced a highly decorative hybrid, of which good examples are flowering at Kew, one of them carrying three arching spikes of its reddish orange flowers, with a yellow crest to the lip, and recalling an enlarged edition of the Cochlioda, but with larger flowers of lighter colour. The hybrid was originally raised in the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks, flowering six years ago, when it received an Award of Merit from the R.H.S. (*O.R.*, 1911, pp. 149, 180). As in the case of O. Charlesworthii the brown markings of the Odontoglossum parent are lost or suffused through the ground colour, giving flowers of comparatively uniform colour. Both hybrids are acquisitions of great decorative value.

CATTLEYA MOSSIÆ.

THE variable and beautiful Cattleya Mossiæ, which for a long period was one of the principal exhibition plants at the Spring Shows, has been of late somewhat eclipsed by some of its hybrids, but the annexed figure, from an imported clump which flowered in the collection of Albert Pam, Esq., Little Hallingbury, Essex, gives some idea of what the plant

Fig. 14. CATTLEYA MOSSIÆ.

must be like when growing vigorously in its native home. The clump was brought from Venezuela by Mr. Pam, where it grew on a thick tree-stump, the roots being protected with moss, and on this it continued to thrive, as shown in the illustration. There were additional flowers on the other side of the clump, which, of course, could not be shown in the photograph. The species is a native of of the Caracas district, where it is known as the *Flore de Mayo*, and is said to occur on the mountain range of North

Venezuela, between Porto Cabella and Cape Codera, whence it has long been imported in quantity. It first flowered in this country in the collection of Mrs. Moss, Otterspool, near Liverpool in 1839, when it was figured and described as Cattleya Mossiæ in the *Botanical Magazine* (t. 3669), being dedicated to Mrs. Moss. Lindley afterwards regarded it as a variety of C. labiata, a view, however, which is no longer current. C. Mossiæ is well known as one of the most variable of Cattleyas as regards colour, particularly in the extent and intensity of the purple of the front lobe of the lip, and the amount of yellow on the disc. A large number of varieties have received distinctive names, but they can hardly be regarded as more than individual variations. Of the white forms the most distinct are var. Wageneri, pure white, with a a yellow disc to the lip, and Reineckeana, with the addition of some rosy veining on the front lobe.

CYMBIDIUM MADIDUM.—An inflorescence of a very distinct and interesting Cymbidium, which proves to be the Australian C. madidum, Lindl., has been sent from the collection of G. Hamilton-Smith, Esq., Northside, Leigh Woods, Bristol. Mr. Hamilton-Smith remarks: "The history is that it was imported some years ago from Brazil, with an importation of Cattleya bicolor, and I have not the least doubt that the statement is correct, but, if so, how did it get there?" The latter remark is in allusion to the fact that the genus Cymbidium is not a native of the New World, and if the record is correct we can only suggest that the plant came from some garden there, for some Old World Orchids are cultivated in Brazil—it is hardly likely that the species is naturalised there. C. madidum has a rather confused history. It was described by Lindley in 1840 (*Bot. Reg.*, xxvi. Misc. p. 9), as a new species of East Indian Cymbidium imported by Messrs. Rollisson. For a long time nothing further seems to have been heard about it, but in 1889 it was identified with the Australian C. albucæflorum, F. Muell (Rolfe, in *Garden Chron.* 1889, ii. p. 401), a species introduced to cultivation just previously. It was exhibited by G. C. Raphael, Englefield Green, at a meeting of the R.H.S. held in March, 1889. The plant having been sent to Mr. Raphael from Australia. It was exhibited without a name, but was subsequently identified (*Gard. Chron.*, 1889, i. pp. 406, 587). I have since found a painting made by Mr. John Day, in June, 1884 (*Orch. Draw.*, xliii. t. 31), with the record, "Drawn at Mr. William Bull's from a plant of his own importing from Queensland." How he obtained the name is not clear, and it may possibly have been added afterwards. The species was also obtained from a friend in Australia by Major H. N. Chearnley, and there are dried specimens collected at Rockingham Bay, by Dallachy, and on Mt. Dryander, by Fitzalan. The name C. madidum is not included in

Bailey's Queensland Flora, doubtless because of the erroneous record of locality, but its identity with C. albacæflorum is certain. It is an interesting plant, closely resembling C. pendulum in habit, and bearing a pendulous raceme of some dozen yellowish-green flowers, with a brown area on the disc of the lip, and a yellow, shining midline, which replaces the keels found in other species. It is rare in gardens.—R.A.R.

CŒLIOPSIS HYACINTHOSMA, Rchb. f.—It is interesting in these abnormal times to receive an inquiry for a plant of the rare Cœliopsis hyacinthosma, of which we do not remember to have seen living materials for a good many years. The genus was established by Reichenbach as long ago as 1872 (*Gard. Chron.*, 1872, p. 9), on a sketch and three living flowers sent from the garden of W. Wilson Saunders, Esq., Reigate, being described as an ally of Sievkingia, but widely distinct in the column, pollen apparatus, and lip. The author added: "The plant appears to be quite distinct. We may by-and-by know its cousins, and then understand it better." It apparently passed into the collection of Sir Trevor Lawrence, Bart., and on November 26th, 1881, an inflorescence was painted by Mr. John Day (*Orch. Draw.*, xvii. t. 75), who remarked: "Sir Trevor Lawrence sent me this curious and very rare specimen, which I have just had time to draw on this my last morning at home before I start for India and Japan, &c. The flowers are very fleshy. As I have never seen the plant I cannot describe it. The scape seems short, with numerous brown scales." Six years later he added the following note: "Memo.—Oct. 2nd, 1887. I saw this plant in bloom at Sir Trevor's a week since. The plant was growing in a basket. It had rather small bulbs, and long erect rather stiff-ribbed leaves, and the scape had pushed itself out between the bars of the basket like an Acineta, but the scape was quite short." It was probably this very inflorescence that at the time was sent to Kew through Messrs. James Veitch & Sons, when I suggested, from the floral structure, an affinity with Schlimmia (*Gard. Chron.*, 1887, ii. p. 520), though the habit, which I had not seen, would place it near Peristeria. The flowers are borne in an umbel of eight to ten, the very short peduncle being covered with numerous closely-imbricating scales. The flowers are fleshy, and wax-like, and the segments white at the base, but buff at the upper portions (the latter possibly a change assumed as it begins to fade). The base of the column is purple and the disc of the lip yellow. Reichenbach was informed by Mr. Saunders that the flowers had the most delicious perfume of hyacinths, in allusion to which the specific name was given, though to me it appeared more like cowslips, or perhaps scarcely as pleasant. It is certainly an interesting plant, and we should be glad to hear whether it is still known in cultivation.—R.A.R.

CALENDAR OF OPERATIONS FOR MAY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

APRIL, from a cultivator's standpoint, has this year been a most anxious and trying month. The extreme cold has necessitated the use of much fire heat to maintain the temperatures of the different houses, at the same time preventing that free admission of air that is possible when milder and more genial conditions prevail. Whatever growth is made under these circumstances is weak, and less able to withstand the sun than when the weather is more genial, besides being more subject to insect attacks. The summer temperatures should not be allowed to make up for the lateness of the season, as any attempt to force the plants may easily end in disaster, especially to things just coming into bloom.

ATMOSPHERIC MOISTURE may now be used most liberally whenever the outside conditions are at all spring-like, and, with the warmer weather and the increased ventilation, little harm is likely to accrue, provided the temperatures are maintained. The extremes of a wet and cold atmosphere and a hot and dry one are to be avoided at all times.

VENTILATION.—The ventilation of the different houses must have the greatest attention, so as to provide a genial growing atmosphere. Everything depends upon the internal conditions, and these are secured by a proper balance between the elements of heat, light, air, and moisture present, so that too much attention and forethought cannot be bestowed upon it. No plant will thrive in unsuitable quarters, and most cases of failure are attributable to unsuitable conditions being maintained.

SHADING also must have close attention, as the blinds should not be kept down when not required. On the other hand, the sun must not be allowed to shine on the plants when there is danger of the foliage suffering, and this may easily occur after a sunless period like that we have recently passed through. The maximum amount of light should always be admitted, without direct sunshine.

CYPRIPEDIUMS that have passed out of bloom should be repotted at once, should they require it. Owing to the lateness of the season many of this popular genus have carried their flowers over a longer period than usual, therefore they should be potted immediately their flowers fade.

CATTLEYAS AND ALLIED GENERA.—The spring-flowering section of these beautiful plants will now be pushing up their flowers within the sheaths, and it is advisable to place the plants where they may receive abundance of light and air on all favourable occasions. It is also advisable to clean the plants thoroughly before the flower buds push through, as they are easily broken afterwards. When in bloom the conditions of the house may be

kept drier, and slightly cooler, which will prolong the flowering period and make the house more accessible and enjoyable to those visiting them. The potting of the plants, as they pass out of flower and begin to push roots at the base of the pseudobulbs, should have attention whenever necessary, taking care not to overwater the new compost until new roots have entered it freely.

SOPHRONITIS GRANDIFLORA.—This miniature Cattleya thrives in the Cool house, and now that the plants are commencing to push new roots from the growths which recently flowered, they should have new rooting material given them, if they are in need of it. The Cattleya compost will answer their requirements, but it is obvious that these small plants will require it cut up into much smaller pieces, and small receptacles must be used for their accommodation.

CYMBIDIUMS include some of the most useful and easily-cultivated Orchids, both species and many most beautiful hybrids, and, as their flowers last a considerable time in perfection, they will undoubtedly receive extended popularity. Being plants which resent root disturbance they should not be potted until really necessary, as the plants bloom more freely and produce finer flowers when the pots are well filled with roots. Any plants that have not sufficient room to develop the season's growth, or of which the compost has become decomposed, should, of course, be repotted. The pots should be well drained, and a larger shift may be given than to most Orchids. A compost in which good yellow loam fibre, with some fine broken crocks to keep the whole open, sbould be used. The best time to repot is whenever the half-made pseudobulbs are about to produce roots. Extreme caution is necessary in the application of water to the newly-potted plants, until the roots have freely entered the new compost; an excess in many cases not only means the loss of leaves, but also decay of the pseudobulbs. They grow best in a shady position in a Cool intermediate house, with plenty of fresh air, and they resent strong sunshine at any time.

PHALÆNOPSIS.—P. Schilleriana, Aphrodite, amabilis, and Sanderiana, having passed out of flower and commenced to make new leaves and roots, should be afforded new rooting material, if they require it. Whatever receptacles the plants are grown in, they should be well drained, and only a thin layer of clean live sphagnum moss used as compost. They should be grown on the shady side of the East Indian, or warmest house. Care is necessary, even with these pseudobulbless plants, in the application of water after root disturbance.

LYCASTES.—L. Skinneri and its varieties that are starting into growth should be repotted, if necessary, also other varieties of the same genus. These plants succeed in a similar compost to that used for the green-leaved

Cypripediums, and should be potted in the same manner. A shady position in the cool Intermediate house answers their requirements.

ANGULOAS also thrive under the same conditions as Lycastes, and may be treated in precisely the same way.

ODONTOGLOSSUMS of the grande and Insleayi section require a slightly higher temperature than that provided for O. crispum. The same thing applies to O. citrosmum and its varieties. During the winter months they are best grown at the coolest end of the Intermediate house, and kept comparatively dry, but during the summer the warmest end of the Odontoglossum house is more suitable. O. grande, with others of these Mexican Odontoglossums, will have commenced to grow, and when new roots are seen to be pushing from the new growths they may have attention as regards repotting, should they require it. The usual Odontoglossum compost is suitable for them. O. citrosmum will require attention as regards repotting or basketing, whichever mode of culture is adopted, immediately the flower scapes are removed. Care must be taken in the application of water to the newly-potted plants until they become well-rooted, but when in full growth an abundant supply can be given. As soon as growth is complete they delight in a long dry rest, and only sufficient water to prevent shrivelling should be given.

The Colombian Odontoglossums, thanks to our hybridists, now number so many delightful varieties that there are always some most beautiful plants in flower.

DENDROBIUM PHALÆNOPSIS, having now started to grow, will quickly push numbers of new roots from the young growths, and before these make much progress any necessary potting should be attended to. The smallest receptacles possible should be used, as, during growth, they delight in abundance of water, and as they thrive best when the material dries quickly it is obvious that too much material should not be placed around their roots. A clean fibrous material, as used for other Dendrobiums, answers their requirements, and it should be made thoroughly firm around the base of the plants. D. bigibbum and D. Goldiei also succeeds under similar treatment, and should have attention in precisely the same manner. Other Dendrobiums that require similar attention at this season are the tall-growing D. Dalhousieanum, moschatum, fimbriatum, clavatum, &c.

VANDA CŒRULEA is an Orchid which everyone admires when in bloom. and one which many do not succeed with as they would wish. The present is a good time to repot any that may require it. They may be grown in a compost of all live sphagnum moss, or equal parts of any clean fibre mixed with it. This species resents being grown in too shady quarters, and should have plenty of light the whole year round. Only sufficient shade to prevent scorching should be used, and the plants must have a supply of

fresh air at all seasons. When in full growth it likes a fairly high temperature, provided that air and moisture are also given. A warm Intermediate house is suitable to grow it in, and when at rest it should be exposed to all the light possible and kept dry.

GENERAL REMARKS.—This is the busiest month in the whole year to the Orchid cultivator, who will, in many cases, find an incomplete staff to deal with it. Each one of us will feel it his duty to do whatever he can to carry on until the present strife is over and things resume their normal conditions. Continue to exercise the greatest diligence in the eradication of all pests which hinder us in the cultivation of the plants we love. Maintain a healthy and sweet atmosphere within the houses, apply water to all plants with discretion, and success will be the reward.

MEGACLINIUM ENDOTRACHYS, Kränzl.—Another species of Megaclinum has appeared in cultivation, a plant which has just flowered in the Royal Botanic Garden, Glasnevin, proving to be M. endotrachys, Kränzl., which was described some twelve years ago (*Engl. Jahrb.*, xxxvi. p. 115) from dried specimens collected at Grand Bassa, Liberia, by Dinklage. It was obtained under the name of M. velutinum, Lindl., a species which is quite distinct. M. endotrachys is an ally of M. falcatum, Lindl., but is distinguished by its much longer, rather elongated rachis, and in certain details of floral structure. The pseudobulbs are oblong, 1½ to 2 inches long, bearing two oblong leaves, somewhat narrowed below, and three to four inches long. The scape is ten to twelve inches long, the upper six inches forming the narrowly oblong rachis, on either side of which the flowers are borne at intervals of over half an inch. The dorsal sepal is elliptical-obovate, obtuse, with a thickened, somewhat recurved yellow margin, and some purple spots behind, while the acute lateral sepals are greenish with purple spots, and the clavate petals are yellow. The genus is entirely African, and numbers about forty species, several of which are known in cultivation. The species is remarkable for the broad, flattened rachis, on the side of which the flowers are borne in two ranks.— R.A.R.

MEGACLINIUM VELUTINUM, Lindl.—This species (which is mentioned in the preceding paragraph) seems to have been completely lost sight of. It was described by Lindley in 1847 (*Bot. Reg.*, xxxii. sub. t. 32), when the author remarked: "Nearly related to M. falcatum, from which its lateral sepals velvety inside distinguish it. The flowers are deep purple, as well as the rachis, except the upper sepals and petals which are dull yellow Messrs. Loddiges imported it from Cape Coast Castle." The rachis is also nearly twice as broad as in M. falcatum. The original inflorescence and a coloured drawing of a flower are preserved in Dr. Lindley's Herbarium.—R.A.R.

LYCASTE SKINNERI.

LYCASTE Skinneri has long been grown with great success at Bridge Hall, Bury, the residence of O. O. Wrigley, Esq., the species being a favourite with Mr. Wrigley. Its flowers are used largely for room and table decoration, as they stand well in water, and their pure colours show

Fig. 15. LYCASTE SKINNERI AT BRIDGE HALL, BURY.

out well under artificial light. Moreover, the supply continues for a long period. At a meeting of the Manchester Orchid Society held on April 5th last, a series of twenty-one beautiful varieties, white and coloured, was included in a fine group, to which a Special Vote of Thanks was accorded. The way the species is grown by Mr. Rogers is well-shown in an illustration of an earlier group, reproduced from a photograph taken by Miss Wrigley.

The plants are grown in the cool Intermediate house, a little fibrous loam being incorporated in the compost, and during the growing season an abundant supply of water is given.

The late Mr. John Day had a high appreciation of this Lycaste, and in 1881 remarked, when figuring a particularly fine variety (*Orch. Draw.*, xxviii. t. 19): "It has now 19 splendid flowers, all in perfection, and reminds me of the many grand specimens of this noble Orchid that I used to have in the old days. It is now seldom seen so fine as it was then. Mr. Skinner used to send grand masses to Veitch, and from 20 to 50 flowers on a plant was not uncommon. I think no Orchid varies so much as this, not even Lælia elegans or Odontoglossum crispum. My drawings in Scrap Books iv., ix., xi., and xii. will illustrate this." The series shows ten very diverse varieties, in addition to the beautiful variety alba, which seems to have been rarer at this early period than at present.

SOCIETIES.

AT the usual fortnightly meeting held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on April 11th, there was a rather small display of Orchids, and the awards consisted of one medal and one First-class Certificate.

Orchid Committee present: Frederick J. Hanbury (in the Chair), J. O'Brien (hon. sec.), J. Wilson Potter, R. A. Rolfe, T. Armstrong, Walter Cobb, J. Shill, R. Brooman White, and J. Charlesworth.

FIRST-CLASS CERTIFICATE.

ODONTIODA CORONATION ORCHIDHURST VAR. (Oda. Vuylstekeæ × Odm. crispum).—A superb variety, bearing a panicle of 49 large and handsome flowers. The shape is excellent, and the ground colour cream white, with a rosy margin and much dark Indian red blotching, while the very broad lip is creamy white in front, with red markings round the yellow crest. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed Cattleya Lady Rowena (Warneri alba × Suzanne Hye), bearing two fine white flowers, with orange-yellow veining on the disc of the lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group of choice things, including Odontoglossum Peerless magnificum, ardentillus, eximillus, Conqueror, and Victory, also good forms of Odontioda Henryi, Cooksoniæ, Charlesworthii, and Royal Gem var. violacea, a pretty rosy-violet form with the usual blotching (Silver Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, sent Læliocattleya

Circe (Alcippe × Hypatia), having chrome yellow sepals and petals, and the front of the lip purple-crimson. Lc. Colombia (Jeanette × Wellsiana), a well-shaped light purple flower, with a rich crimson-purple lip, also examples of Lc. Meuse, Cattleya Tityus and Robert de Wavrin, Odontoglossum eximium, Odontioda Brewii, Ruby Gem, and Lambeauiana.

Messrs. Stuart Low & Co., Jarvisbrook, sent Læliocattleya Calabria, Lc. Œnius (C. Enid × Lc. Coronis), having fawn-coloured sepals and petals and a reddish purple lip, Cattleya Schrœderæ Purity, with three white flowers, and cut spikes of Vanda tricolor, suavis, Bensoniæ, V. Parishii Marriottiana, Aërides Vandarum, and Saccolabium bellinum.

Messrs. Sander & Sons, St. Albans, staged an interesting group, including Odontioda Leda (C. Nœtzliana × Odm. Rio Tinto), O. Devosiana, Eria flava, Læliocattleya Boylei var. Kerchoveæ, Goldcrest, and Joy Sander, a few good white Cattleyas, and others.

At the meeting held on April 25th the Orchids were rather more numerous, and the awards consisted of two medals, one Award of Merit, and two Preliminary Commendations.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, W. H. White, Walter Cobb, J. Charlesworth, T. Armstrong, C. J. Lucas, Pantia Ralli, R. G. Thwaites, F. J. Hanbury, R. A. Rolfe, R. Brooman White, and Sir Harry J. Veitch.

AWARD OF MERIT.

LÆLIOCATTLEYA SERBIA VAR. PERFECTA (Lc. St. Gothard × C. Enid).—A very large and handsome variety, the flowers being of excellent shape, the broad sepals and petals rose, and the lip purple, with a lilac-coloured margin, and some purple lines on the yellow disc. Exhibited by Messrs. Charlesworth & Co.

PRELIMINARY COMMENDATIONS.

ODONTOGLOSSUM CRISPUM DREADNOUGHT.—A very fine form, having broad sepals and petals, the latter well fringed, and reddish claret in colour with white margins, and the lip white with a few large brown blotches in front of the yellow crest. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM REX (crispum × hybrid unrecorded).—A very promising hybrid, densely blotched with mauve purple on a white ground, and the lip broad and handsomely blotched. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice and interesting group, in which seedling Odontoglossums were well represented, including forms of ardentillus, crispum xanthotes, Dreadnought, nævross, Conqueror, Thisbe, Thompsonianum, Mars, and Fabia purpurea, with

Odontioda Diana, rosefieldiensis, Bradshawiæ and Vuylstekeæ, Miltonia Hyeana, Cymbidium Lowgrinum, Læliocattleya Mrs. Temple, Lc. Ithone, and Cattleya Niobe Orchidhurst var., forming a very attractive display (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of well-grown specimens, including forms of Odontoglossum illustrissimum, crispum, and armainvillierense, Odontioda Brewii, Cooksoniæ, and Bradshawiæ, the latter with a very broad band of rose all round the segments, Miltonia Bleuana, a fine Cymbidium Alexanderi, Sophrocatlælia Meuse, Læliocattleya Wallisiana, and others (Silver Banksian Medal)

Messrs. Sander & Sons, St. Albans, staged an interesting group, including forms of Læliocattleya Goldcrest, Lc. Mrs. J. F. Birkbeck, Lc. Watsonii (Lc. Canhamiana × C. Schrœderæ alba), a pretty white form, with solid purple blotch in front of the yellow disc of the lip, Odontoglossum Fletcherianum, O. Iconum (cirrhosum × Fascinator), most like former in shape and very copiously spotted with purple, Odontioda Lutetia, Epidendrum Endresio-Wallisii, Trichopilia suavis, the rare little Trias picta, Cœlogyne ochracea, Cattleya Mary-Sander, Miltonia Bleuana, and a few Brassocattleyas.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on April 5th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, A. G. Ellwood, J. Evans, P. Foster, J. Lupton, D. McLeod, W. Shackleton, and H. Arthur (Sec.).

Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport), and to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran), for fine groups of Odontoglossums and Odontiodas.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. E. Rogers), for a fine group, including twenty-one beautiful varieties of Lycaste Skinneri, white and coloured, the rare L. lasioglossa, Sophrocattleya grandiflora Sophrocatlælia Marathon, Miltonia Bleuana Our Queen, a few Cymbidiums and Odontoglossums, and a series of choice Cypripediums.

A few other interesting exhibits came from Col. Sir John Rutherford, M.P., Blackburn (gr. Mr. J. Lupton); John Hartley, Esq., Morley, and Messrs. Charlesworth & Co., Haywards Heath.

FIRST-CLASS CERTIFICATES.

Odontoglossum ardentissimum var. Daphne (Pescatorei × crispum), a perfectly round flower, with large, even blotches on the sepals and petals; Odontioda Gladys var. superba (Oda. Bradshawiæ × Odm. Pescatorei), a

flower of good form, ground almost white, brig ht markings, and the edges of the sepals and petals a blue pink shade ; from Dr. Craven Moore.

Odontoglossum Thwaitesiæ var. Ghurka (Rossii × Harryanum), a large flower of very deep colour, and O. Wilps (promerens × Aireworth), very densely spotted ; from P. Smith, Esq.

Odontioda Zenobia Beardwood var. (Oda. Charlesworthii × Odm. percultum), a large flower of good form and substance, and deep maroon colour, with large flat lip ; from Col. Sir J. Rutherford, Bart.

AWARDS OF MERIT.

Odontoglossum crispum var. Rose, Sophrocatlælia Marathon superba, Scl. Meuse, and Cypripedium Ranji (Rappartianum × triumphans) ; from P. Smith, Esq.

Odontoglossum ardentissimum Gladys, O. Jasper Conyngham var., Odontioda beechensis, and O. Adonis (Oda. Vuylstekeæ × Odm. Doris); from Dr. Craven Moore.

Odontoglossum crispum Ragged Robin, and Odontioda Golden Queen ; from R. Ashworth, Esq.

FIRST-CLASS AWARDS OF APPRECIATION.

Odontoglossum Amethyst (Lambeauianum × eximium) ; from Dr. Craven Moore.

Odontoglossum Lambeauianum var. splendens ; from P. Smith, Esq.

CULTURAL CERTIFICATES.

John Hartley, Esq., for Odontoglossum crispo-Harryanum, a spike carrying nineteen large flowers.

Mr. E. Thompson, for Eulophiella Elizabethæ, with two fine spikes.

N.B.—It is suggested that the Nomination Forms for Candidates for seats on the Committee shall, for this season, be discontinued, and that at the Annual Meeting the whole of the retiring members (some of whom are serving in His Majesty's Forces) shall be re-elected. In the event of any member wishing to make any other nomination (which must be with the nominee's consent), the same must be forwarded to the Secretary prior to the Annual meeting on May 10th.

At the meeting held on April 16th the members of Committee present were : The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, A. J. Ellwood, J. Evans, P. Foster, J. Lupton, D. McLeod, W. Shackleton, and H. Arthur (Sec.).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), and to Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran), for choice groups, largely made up of Odontiodas and Odontoglossums.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine miscellaneous group, in which a number of well-flowered Dendrobium nobile varieties were conspicuous.

Interesting exhibits were staged by Phlilip Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); Col. Sir J. Rutherford, Bart., M.P., Blackburn (gr. Mr. J. Lupton); Messrs. Sander & Sons, St. Albans, and Messrs. Keeling & Sons, Bradford, a number of which appear in the above award list.

FIRST-CLASS CERTIFICATES.

Odontioda Bradshawiæ var. Columbia, and O. Lambeauiana var. Ruby (C. Nœtzliana × Odm. Lambeauianum); Cymbidium Alexanderi var. cœleste (eburneo-Lowianum concolor × insigne), and var. Mars. (eburneo-Lowianum × insigne roseum); from Dr. Craven Moore.

Cattleya Cowaniæ alba and Miltonia Bleuana var. Priam; from R. Ashworth, Esq.

Odontoglossum mirum Haddon House var. (Wilckeanum × crispum Luciani); from P. Smith, Esq.

AWARDS OF MERIT.

Odontioda aurea var. Beauty (Odm. luteopurpureum Vuylstekeanum × Oda. Charlesworthii), O. Tigris (Charlesworthii × Odm. harvengtense); Odontoglossum Zoe (Vuylstekei × Crawshayanum); Cattleya Schrœderæ var. Maude; and Cypripedium Greyii magnificum (niveum × Godefroyæ); from P. Smith, Esq.

Odontioda Zenobia var. Hamilton, and O. Lambeauiana var. Hazel; from Dr. Craven Moore.

Odontoda Madeline var. Oporto; from R. Ashworth, Esq.

FIRST-CLASS AWARDS OF APPRECIATION.

Odontioda Bradshawiæ var. Anglaia, O. Madeline var. Diadem, and Odontoglossum illustrissimum var. K. of K.; from R. Ashworth, Esq.

Odontoglossum Lady Maude (crispum × loochristense), and O. President Wilson; from S. Gratrix, Esq.

Odontioda Elaine (Odm. Lambeauianum × Oda. Charlesworthii); from Dr. Craven Moore.

CULTURAL CERTIFICATES.

Mr. J. Lupton, for Cymbidium Parishii Beardwood var., carrying four spikes of flowers.

Mr. E. Rogers, for Eulophiella Elizabethæ, carrying two fine spikes.

The next meeting will be held in the Coal Exchange, Manchester, on Thursday, May 10th, 1917. The Committee will meet at 12 o'clock noon, and the Annual General Meeting (to which all members are invited) will be

held at 2.33 p.m., when the Balance-sheet will be submitted for approval, officers and Committee elected, prizes presented to the successful competitors, alteration or addition to rules (of which immediate notice should be given to the Secretary), and any other business transacted.

The Secretary will be pleased to receive offers of prizes for competition during the coming session, so that the same may be announced at the Annual Meeting.

ORCHIDS IN SEASON.

A VERY handsome Odontoglossum is sent by Sir Jeremiah Colman, Bart., Gatton Park, Reigate, which was obtained under the name of O. crispum, with an inquiry as to whether the designation is correct. It has broad petals, which are copiously spotted with violet purple on the lower halves, and the lip shows the unmistakable shape and markings of O. Rolfeæ, so that we think it is a form of O. Lambeauianum. The sepals are more suffused with violet, and have larger blotches.

Odontoglossum Felix is a hybrid of O. Thompsonianum from the collection of R. G. Thwaites, Esq., Chessington, Streatham, but, unfortunately, the other parent is unknown. The flower is almost uniformly dark brownish purple, with a deep yellow crest. Possibly other seedlings from the same batch may yet afford a clue to the parentage.

Flowers of two pretty seedlings, obtained as derived from Odontioda Goodsoniæ × Odontoglossum crispum, are sent from the collection of H. Worsley, Esq., Sherfin, Bakenden, near Accrington. They are rosy red, with some brown spotting on the sepals. As Odontioda Goodsoniæ and O. Cooksoniæ are forms of the same hybrid, the seedlings will be forms of O. Vivienne, raised in the collection of Mrs. Norman Cookson.

A flower of Cypripedium Eva Cary-Batten is sent from the collection of Col. Carey-Batten, Leigh Lodge, Abbotsleigh, Bristol, through Messrs. Keeling & Sons, Bradford. The parents are said to be C. villosum Prince Noir × Col. Carey-Batten, the latter also raised in the collection from C. Lathamianum × Mrs. Carey-Batten. The flower has a large brown area on the dorsal sepal, which strongly recalls C. Mrs. Carey-Batten, and in other respects it shows characters of both C. villosum and C. Spicerianum. It is very promising.

Two interesting Odontiodas are sent from the collection of A. R. Crossley, Esq., Falling Royd, Hebden Bridge. O. Roydii (Oda. Vuylstekeæ × Odm. tigrinum) is the first of the batch to bloom, and the colour is deep crimson, much recalling O. Charlesworthii in this respect, though differing considerably in shape. O. Elaine (Oda. Charlesworthii × Odm.

Lambeauianum) is represented by two seedlings from the same seed pod, and are quite diverse in colour. In one the sepals and petals are scarlet-red, with a whitish area above and below, while in the other they bear large chestnut blotches on a white ground, rather recalling an Odontoglossum, though with the Odontioda shape. In the latter case the sepals of the six flowers on the spike are not quite normal, but it is hoped this may not recur when the plant becomes stronger.

Mr. Crossley sends some statistics of the long, cold weather we have just passed through, showiug that the mean temperature of December and the three following months was three to four degrees colder than the average of the last 29 years, and that April, up to the date of writing, had exceeded all previous experience, with frost varying from 4 to 23 degrees at night, and snow on most days, an exceptionally trying period for the cultivator.

From the collection of E. F. Clark, Esq., Evershot, Dorset, we have received another flower of Lælia Susanna, supposed to be a hybrid between L. pumila and Dayana (*O.R.*, xxiii. p. 37). Mr. Clark states that the habit is fairly strong, suggestive of a large L. pumila, if not even of L. Jongheana. We are not quite clear about the L. Dayana parentage. The keels and some yellow deep in the throat, together with the rather elongated sepals and petals, are rather suggestive of L. Jongheana, and as the pollen is typical Lælia we suggest a form of L. Adrienne (pumila × Jongheana). A flower of Odontoglossum Electra (Andersonianum × triumphans) raised in the collection, is also sent, and is fairly intermediate in character. Two diverse forms of some Lælia tenebrosa cross were afterwards sent, but there is a doubt about the exact parentage. Some yellow in the sepals and petals of one of the flowers suggests the presence of L. cinnabarina. It is thought to have been raised from seed obtained with the record L. tenebrosa × Diana, but the point is not quite certain. The other has more bronzy sepals and petals, and both have purple lips.

CYMBIDIUM MUNRONIANUM, King & Pantl.—Flowers of this rare Cymbidium have been sent from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol. The species is a native of Sikkim, and was described some years ago, and afterwards figured (*Ann. R. Bot. Gard. Calc.*, viii. p. 187, t. 249), being dedicated to the late Mr. James Munro, for many years resident in Sikkim, and well known as a lover of plants. It is said to occur in the Teesta Valley, on dry knolls at the elevation of 1,500 feet, and also in Bhootan. Ridley afterwards recorded it as also found at Bukit Bunga, Setul, in the Malay Peninsula, a plant from there having flowered in the Penang Botanic Garden. It is an ally of the Chinese C. ensifolium, Lindl., and has narrow leaves and erect racemes of

fragrant flowers, the sepals and petals being straw-coloured, dotted and streaked with red, and the lip with some transverse red lines and a recurved, light yellow apex. Mr. Hamilton Smith remarks that he imported it about two years ago with some other Orchids. It is an interesting plant, but, like several other of its allies, is never likely to become common in cultivation.—R.A.R.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during May, on the 8th and 22nd, when the Orchid Committee will meet at the the usual hour, 12 o'clock noon. The second meeting would, under normal conditions, have been the Great Spring Show at Chelsea, which, together with the Holland House Show, has had to be abandoned, under circumstances mentioned at page 47. The succeeding meeting is fixed for June 5th.

The Manchester and North of England Orchid Society will hold its last meeting of the present session at the Coal Exchange, Manchester, on May 10th, at the usual hour, followed by the Annual General Meeting at 2.30 p.m., when the statement of accounts will be presented, and arrangements for the coming year will be announced.

The plant of Cymbidium insigne album which received an Award of Merit from the R.H.S. on February 27th (see p. 67), has been acquired for the collection of G. Hamilton Smith, Esq., Leigh Woods, Bristol, as it is suggested to have possibilities for hybridisation purposes.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.G..—The parentage of Cypripedium Boltonii is C. insigne Sanderæ and C. niveum, and thus it must be regarded as a variety of C. Venus.

J.C.—Many thanks. The note is unavoidably postponed.

Mrs. E.J.T.—Aërides multiflorum var. Lobbii.

F.D.—Many thanks for the flowers duly to hand, which will be recorded next month.

We regret that, owing to the abnormal conditions caused by the war, our binders have not yet been able to supply the cases for last year, and that some volumes are delayed by the same cause. Unforeseen and unavoidable difficulties have delayed the present issue, but these, we hope, are only temporary.

The Orchid Review

VOL. XXV. JUNE, 1917. No. 294.

OUR NOTE BOOK.

IT is curious what an amount of confusion has been introduced into the histories of some of our oldest or most familiar garden Orchids. It was the case with Phalænopsis amabilis, with Anguloa uniflora, and with Phaius tuberculosus, to cite three familiar examples, and we now have evidence that the remarkable Cypripedium caudatum has not escaped, as may be seen by an article on another page. Messrs. Sander have always contended that the Peruvian Cypripedium introduced by Forget a few years ago was different from the forms familiar in gardens, hence they named it C. caudatum Sanderæ. It has been exhibited on several occasions, and now that it has received an Award of Merit from the R.H.S. we were induced to look the matter up further, with results seen in the article mentioned. It is now doubtful whether the Peruvian form, which was discovered by the Spanish botanists, Ruiz and Pavon, at least 120 years ago, and described half a century later by Lindley, has previously been introduced, for the plants long cultivated in gardens are shown to have come from elsewhere, while errors in the records, as on previous occasions, are partly due to confusion with allied species. The only thing is to rectify such mistakes when discovered.

We had recently occasion (pp. 26-28) to review the question of the so-called "origin of species by crossing," and a paper noticed on page 123 of the present issue invites the query as to how many such "species" may arise from a single cross, or at all events from the intercrossing of the same pair of original species? In the paper in question are described, and figured. three so-called new "species," derived from the intercrossing of Orchis elegans and O. coriophora, of which one earlier form has already been described. We are, of course, familiar with the variation of hybrids between the same two species, and have arrived at a pretty general agreement to consider them forms of one; and that not a species, for they do not behave at all like species such as we know them in nature. Even in the genus Orchis there is plenty of material for comparison, for a large number of natural hybrids have been described where the species grow intermixed.

Some of these hybrids may have been inadvertently described as species before their origin was known, but this is beside the point. We wonder how many hundred species of Cypripedium, Cattleya, or Læliocattleya could be made by working on such lines?

These remarks do not exclude the possibility that species, as we know them in nature, may sometimes have arisen by hybridisation, but without evidence that such forms reproduce themselves true from seed, and thus have the property of diffusing themselves from their original birthplace, we are not justified in so regarding them. In a very large number of cases such evidence as we possess points to the elimination of these hybrid forms through reversion, or swamping by intercrossing with the original parents, while new generations of hybrids arise under the original agencies. Further experiments as to the constancy of hybrids when self-fertilised should be attempted.

MOSCOW ORCHID SOCIETY.—An important notice failed to reach us some time ago, doubtless owing to postal derangements caused by the war, but the information is now confirmed by the President, Dr. J. Troyanowsky. At the annual meeting held on December 4th, 1915, the following were elected as honorary members of the Society: Mr. J. Gurney Fowler, Count Jos. de Hemptinne, M. Ch. Vuylsteke, Mr. R. A. Rolfe, and Mr. Edward V. Low. The Society, which was inaugurated three years previously, has made considerable progress, and during the preceding year held 23 meetings, when many fine Orchids were exhibited. Three Diplomas were awarded for the best groups, with 20 First-class and 17 Second-class Diplomas for varieties; also three Diplomas for good culture. The President congratulated the Society on its progress, and expressed his pleasure that, notwithstanding the severe trials and sad losses in the unprecedented fight for the highest ideals of humanity, the Society had followed the example of their valiant allies, and continued its activity. His counsel was to follow the ideal of the Royal Horticultural Society of England, which had done so much for that country's renown. Dr. Troyanowsky was elected President for the next term of three years, with Mr. A. Varjenevsky and Mr. R. Prowe as Vice-Presidents, Mr. A. Karzinkin as Treasurer, and Mr. S. Voronin, Secretary, the other members of the Committee being Dr. A. Langowoy and Mr. Brashnin. At this meeting more than 100 fine Orchids were exhibited, especially noteworthy being a fine Vanda Sanderiana with twelve blooms, from Mr. A. Karzinkin, to which a Diploma was awarded, with congratulations of the Committee. Dr. Troyanowsky hopes to be able to furnish some particulars of future meetings, which will be most welcome.

HYBRID OPHRYSES.

WE are indebted to M. Fernand Denis, Balaruc-les-bains, France, for the flower scapes of two of the very interesting hybrid Ophryses recorded at page 127 of our last volume. The first is O. lutea major × Speculum, of which five seedlings are said to have bloomed this year, four with one, the other with two flowers. The one sent has greenish yellow sepals and petals, and a strongly three-lobed, brown, hairy lip, darker in colour than would have been anticipated from the parentage. The other is O. Scolopax × Speculum, of which two plants have bloomed, and which is to be described by Dr. G. Keller under the name of O. Chobauti. In this case the seed parent is one of the rose-coloured species, and the hybrid has rosy sepals and petals, and a three-lobed, very hairy, dark-coloured lip. The colour cannot well be described, because, owing to difficulties in sending, the flowers had to be dried and enclosed in a letter. Two other hybrids mentioned by M. Denis are, O. Bertolonii × Speculum, of which two seedlings have bloomed, and O. bombyliflora × Speculum, called O. balarucensis, G. Keller, of which three plants have flowered. O. Speculum was the pollen parent in each case. M. Denis' experiments are likely to throw a useful light on what is occurring in nature in this interesting genus.

At the end of April, M. Denis remarked that hardy terrestrial Orchids seemed to be flowering badly this year, both under cultivation and in a wild state, only Ophrys aranifera and the forms of O. lutea being flowering as usual, while Serapias elongata had been killed outright. A fortnight later, however, he wrote that, after a few warm days, he was surprised to see, in a small wood of Pinus alepensis near the Pont du Gard, the celebrated Roman Aqueduct at Montpellier, an abundant flowering of Ophrys arachnitiformis, Aceras anthopophora, and Orchis coriophora, with a few early Limrodorum abortivum.

R.A.R

THREE NEW "SPECIES" OF ORCHIS.—Under the title "Diagnoses specierum trium generis Orchis nondum vel imperfecte descriptarum," M. C. A. Urginsky has described and figured, in a pamphlet, what he calls three "new species" of Orchis, namely, O. pseudoparviflora, O. Reinhardii, and O. Kelleriana, which were found in localities in Central Russia. All are said to be natural hybrids between O. elegans, Heuff., and O. coriophora, L. As O. elegans is itself synonymous with O. palustris, L., and as the natural hybrid between the latter and O. coriophora is known as O. Timbalii, Velen., we should regard the three others as varieties of it —certainly not as new species.—R.A.R.

SIBERIAN CYPRIPEDIUMS.

TWO beautiful hardy Cypripediums with white flowers have just bloomed in the collection of H. J. Elwes, Esq., Colesborne, Glos. Both are said to have been imported by Van Tubergen, in 1914, the larger one as C. ventricosum album, the smaller as C. microsaccos album, this being represented as a white variety of a Manchurian species, most like C. Calceolus, with two to four flowers to a stem. The one sent has a single flower. The habitat of the larger one is not stated, but we take it to be identical with the one exhibited by Messrs. Cutbush & Sons at the Temple Show in 1908 as C. ventricosum album, and of which a figure was preserved (*Gard. Chron.*, 1905, i. p. 414, fig. 183). It is said to have been an albino of a beautiful rose-coloured Cypripedium, a batch of which was also exhibited by Messrs. Cutbush under the name of C. ventricosum, to which a First-class Certificate was awarded. All are said to have appeared in the same batch from Siberia, and we recorded them as C. macranthum and C. macranthum album (*O.R.*, xvi. pp. 184-5, 224).

At the same meeting Messrs. Cutbush exhibited plants of a closely-allied Japanese species under the name of C. macranthum, under which name (as well as a batch which flowered at Kew) we believe they were obtained from the Yokohama Nursery Co. This plant much resembles C. macranthum in general character, but differs in having the flowers veined and mottled with white, not uniformly rose-coloured as in the old Siberian plant. This Japanese form we at first referred to as an imperfectly-known Japanese species, C. Thumbergii, Blume (*O.R.*, xvi. p. 185), but it has since been regarded as a distinct species, C. speciosum, Rolfe (*Kew Bull.*, 1911, p. 207; *O.R.*, xix. p. 205; *Bot. Mag.*, t. 8386). It is an old confusion, and probably arose from the fact that the plant bears the name C. macranthum in the Japanese Floras. The two are now generally regarded as quite distinct, and Messrs. Cutbush remark that there are differences in the roots.

Whether the albino of the Japanese plant has been observed is a point on which we are not quite clear, but Messrs. Cutbush remarked: "We have pure white forms of C. macranthum, and also several brownish types, which, we think, proves that the species hybridise together in nature."

The latter remark probably applies to the Siberian plant, which, it has long been known grows with C. Calceolus in Siberia, where both species are common. As long ago as 1891, M. Barbey described and figured, under the name of C. Calceolus × macranthos, a natural hybrid between these two species, which flowered on his rockwork at Valleyres, all three having flowered in a batch of plants obtained from St. Petersburg as C. macranthum (*O.R.*, xii. p. 185). This natural hybrid was afterwards

identified with C. ventricosum, Swartz (*O.R.*, xviii. p. 215), and the parentage was ultimately confirmed by Mr. Scaplehorn, Messrs. Cutbush's herbaceous foreman, who crossed C. macranthum with the pollen of C. Calceolus, and obtained seedlings identical in character (*O.R.*, xviii. p. 215).

As to C. microsaccos, Kränzl., its history was given at page 268 of our twenty-third volume, at which time we only knew it from description. We have since found in the Herbarium a dried specimen collected in mountain forests in 1889, at Nertschinsk, Dahuria, by F. Karo (n. 125), and labelled C. Calceolus, L., which we think may represent C. microsaccos. It closely resembles a small C. Calceolus in shape and colour, but the lip, as dried, only measures 1½ centimetres long, the size described by Kränzlin. We find no other specimen like it, yet it is very nearly allied to C. Calceolus, if not actually a mountain form of it. Nertschink is a locality to the east of Lake Baikal, and the River Tirma, where C. microsaccos was collected, is rather further eastward. It is significant that the same collector (M. Docturowsky) also collected C. Calceolus × macranthos at the river Tirma, and that both, together with C. Calceolus and C. macranthum, are recorded in the same paper by Kränzlin. Apart from the white ground colour, however, Mr. Elwes' plant can hardly belong, for it has a lip about twice as long, though the sepals and petals are narrow. Of this the lip is white, and the sepals and petals are white, with a faint tinge of green, and we can scarcely imagine an albino of C. Calceolus losing the yellow of the lip, whatever might be the case with the sepals and petals. We cannot recall any white-lipped variety among normally yellow species.

The question, perhaps, remains whether there may not be a white-lipped Cypripedium allied to C. Calceolus that is still imperfectly known. There are three species with normally white lips in different geographical areas. C. cordigerum, Don, is a native of the temperate Himalaya, extending from Kashmir to Kumaon at altitudes between 7000 and 11000 feet. It has light green sepals and petals and a white lip, but in every other respect closely resembles C. Calceolus. Probably the nearest ally of the preceding is C. candidum, Willd, a native of north-eastern America, which has very similar colours, but a rather smaller flower. And C. montanum, Dougl., a native of north-western America, combines a white lip with purple-brown sepals and petals, the general resemblance to C. Calceolus being most marked. It is curious how various closely allied species are scattered about in different geographical areas, and affords the most unmistakable evidence of descent with modification under varying conditions.

There is one other Siberian species that should be mentioned, namely, C. guttatum, Swartz, a charming little plant characterised by its single flower, blotched all over with red-purple on a white ground, and in having

only two leaves. Whether it grows actually intermixed with C. Calceolus is not certain, but we have evidence of the two having been collected at the same place on the same day. It is rare in cultivation, but Mr. Elwes, in 1899, brought home plants from the Altai mountains, where they were found growing in an almost impenetrable forest of Pinus Cembra, on the west shore of lake Teletskoi. They were successfully cultivated, and afterwards figured (*Bot. Mag.*, t. 7746). The species has an exceptionally wide distribution, extending from Central Russia to the Ural Mountains, thence through northern Asia to Kamschatka, Manchuria, the mountains near Peking, and across the Aleutian Islands to Alaska, and as far as the Franklin River in north-west Canada. In the mountains of Asia it extends southwards to Szechuen, in western China, and to the eastern Himalayas as far as the province of Chumbi, in Thibet—an altogether exceptional diffusion. R.A.R.

ORCHIDS OF JAVA.

IT has long been known that Java possesses a very considerable Orchid flora, a large number of species having been described by Blume as long ago as 1825, though the majority have been very imperfectly represented in European Herbaria. A few years ago an enumeration was given by J. J. Smith, under the title of Orchids of Java, and he subsequently published a supplementary work giving analytical drawings of flowers of all the species of which materials were available, these numbering 483. Dendrobium appears to be the genus most numerously represented, as many as 52 species being figured. Javan Orchids do not occupy a very prominent position in gardens, always excepting the beautiful Phalænopsis amabilis and Vanda tricolor and suavis, though Cœlogyne speciosa may be mentioned among a number of interesting though less showy species. Cypripedium is represented by C. javanicum, glaucophyllum, and Lowii.

An interesting fact that has come to light as the flora of neighbouring islands has become known is the large number of endemic species, and the point is further emphasised in an article "On some results of the botanical investigation of Java," by Dr. J. J. Smith (*Bulletin du Jardin de Botanique de Buitenzorg*, xii. pp. 1-5). It is there remarked that many data for a good flora of Java are yet wanting, many species having been collected in a single or in few localities only. On this being pointed out to the Government the necessary funds for a botanical investigation of Java were most liberally granted. As a result, twenty great excursions and several lesser ones have been made. Many localities have been visited, and the flora was collected as completely as possible, and about 10,000 specime ns have been gathered.

Each specimen was provided with a label, on which was recorded the latin and indigenous name of the species, with particulars of the habitat, not forgetting the altitude above sea-level. And wherever necessary and feasible, particulars about the specimen itself were added. These specimens are to be inserted in the Herbarium at Buitenzorg. The investigation is to be carried on a little longer, and will then be utilised in a work on the flora of Java.

Details of the different excursions are given, and a point of interest is the great diversity in the flora of different districts, which is partly accounted for by differences in altitude and rainfall. In the mountainous district north of Buitenzorg, for example, the flora of two adjacent hills proved to be very different. Here are virgin forests of untainted beauty, and the region abounds in lianas, Orchids, and curious saprophytes. On Mount Slamat water is abundant in the middle zone between 1000 and 2000 metres, consequently epiphytes are extraordinarily numerous, especially ferns and Orchids. A list of rare and noteworthy plants found is given.

THE KEW BULLETIN.—It is announced that the *Kew Bulletin* has been suspended, presumably as a war-time economy. At all events, the Controller of H.M. Stationery Office, the publisher, has announced that a list of essential and non-essential publications has been prepared, and that the *Kew Bulletin* has been included in the latter list, and the publication has, therefore, been suspended. An emphatic protest appears in a recent issue of *Nature*, in which it is remarked that the step seems almost incredible to anyone with a sense of proportion of the issues involved. The work serves as the official organ in which the results of scientific activity at Kew are largely given to the world. Kew is the central institution of a great system of smaller institutes established in every region of the Empire, and these institutes exist to further the material prosperity of the countries in which they are situated. The principal sources of wealth in most of our foreign possessions consist of vegetable products, and it is difficult to overrate the importance of keeping the botanical stations, remote as they mostly are, from the main channels of current scientific work, continually informed on relevant matters which from time to time reach the great clearing-house at Kew. Any action which tends to lower the efficiency of these institutes of economic botany must operate in a manner detrimental to the mutual interests of the countries thus effected. The journal has been many-sided in its activities. As regards Orchids, we may note that descriptions of nearly 500 new species, mostly in cultivation, have been published in its pages. We may recall, also an article on the Vanillas of Commerce, in which the different species of economic importance were pointed out.

only two leaves. Whether it grows actually intermixed with C. Calceolus is not certain, but we have evidence of the two having been collected at the same place on the same day. It is rare in cultivation, but Mr. Elwes, in 1899, brought home plants from the Altai mountains, where they were found growing in an almost impenetrable forest of Pinus Cembra, on the west shore of lake Teletskoi. They were successfully cultivated, and afterwards figured (*Bot. Mag.*, t. 7746). The species has an exceptionally wide distribution, extending from Central Russia to the Ural Mountains, thence through northern Asia to Kamschatka, Manchuria, the mountains near Peking, and across the Aleutian Islands to Alaska, and as far as the Franklin River in north-west Canada. In the mountains of Asia it extends southwards to Szechuen, in western China, and to the eastern Himalayas as far as the province of Chumbi, in Thibet—an altogether exceptional diffusion. R.A.R.

ORCHIDS OF JAVA.

IT has long been known that Java possesses a very considerable Orchid flora, a large number of species having been described by Blume as long ago as 1825, though the majority have been very imperfectly represented in European Herbaria. A few years ago an enumeration was given by J. J. Smith, under the title of Orchids of Java, and he subsequently published a supplementary work giving analytical drawings of flowers of all the species of which materials were available, these numbering 483. Dendrobium appears to be the genus most numerously represented, as many as 52 species being figured. Javan Orchids do not occupy a very prominent position in gardens, always excepting the beautiful Phalænopsis amabilis and Vanda tricolor and suavis, though Cœlogyne speciosa may be mentioned among a number of interesting though less showy species. Cypripedium is represented by C. javanicum, glaucophyllum, and Lowii.

An interesting fact that has come to light as the flora of neighbouring islands has become known is the large number of endemic species, and the point is further emphasised in an article "On some results of the botanical investigation of Java," by Dr. J. J. Smith (*Bulletin du Jardin de Botanique de Buitenzorg*, xii. pp. 1-5). It is there remarked that many data for a good flora of Java are yet wanting, many species having been collected in a single or in few localities only. On this being pointed out to the Government the necessary funds for a botanical investigation of Java were most liberally granted. As a result, twenty great excursions and several lesser ones have been made. Many localities have been visited, and the flora was collected as completely as possible, and about 10,000 specime ns have been gathered.

Each specimen was provided with a label, on which was recorded the latin and indigenous name of the species, with particulars of the habitat, not forgetting the altitude above sea-level. And wherever necessary and feasible, particulars about the specimen itself were added. These specimens are to be inserted in the Herbarium at Buitenzorg. The investigation is to be carried on a little longer, and will then be utilised in a work on the flora of Java.

Details of the different excursions are given, and a point of interest is the great diversity in the flora of different districts, which is partly accounted for by differences in altitude and rainfall. In the mountainous district north of Buitenzorg, for example, the flora of two adjacent hills proved to be very different. Here are virgin forests of untainted beauty, and the region abounds in lianas, Orchids, and curious saprophytes. On Mount Slamat water is abundant in the middle zone between 1000 and 2000 metres, consequently epiphytes are extraordinarily numerous, especially ferns and Orchids. A list of rare and noteworthy plants found is given.

THE KEW BULLETIN.—It is announced that the *Kew Bulletin* has been suspended, presumably as a war-time economy. At all events, the Controller of H.M. Stationery Office, the publisher, has announced that a list of essential and non-essential publications has been prepared, and that the *Kew Bulletin* has been included in the latter list, and the publication has, therefore, been suspended. An emphatic protest appears in a recent issue of *Nature*, in which it is remarked that the step seems almost incredible to anyone with a sense of proportion of the issues involved. The work serves as the official organ in which the results of scientific activity at Kew are largely given to the world. Kew is the central institution of a great system of smaller institutes established in every region of the Empire, and these institutes exist to further the material prosperity of the countries in which they are situated. The principal sources of wealth in most of our foreign possessions consist of vegetable products, and it is difficult to overrate the importance of keeping the botanical stations, remote as they mostly are, from the main channels of current scientific work, continually informed on relevant matters which from time to time reach the great clearing-house at Kew. Any action which tends to lower the efficiency of these institutes of economic botany must operate in a manner detrimental to the mutual interests of the countries thus effected. The journal has been many-sided in its activities. As regards Orchids, we may note that descriptions of nearly 500 new species, mostly in cultivation, have been published in its pages. We may recall, also an article on the Vanillas of Commerce, in which the different species of economic importance were pointed out.

HEXADESMIA CRURIGERA.

THERE are many miniature Orchids that, with little care, can be grown into specimens, and in that state are very floriferous and attractive, of which the one here figured forms a good example. It is a plant of Hexadesmia crurigera that was grown in the Royal Botanic Garden, Glasnevin, and is considerably reduced in size in the photograph. It has a densely tufted habit, and the pseudobulbs are fusiform in shape, and bear at their apex a pair of narrow, fleshy leaves, and numerous loose racemes

Fig. 16. HEXADESMIA CRURIGERA.

of white flowers, about a quarter of an inch long, with a purple apex to the column. The species is a native of Central America, and was originally introduced from Guatemala, and flowered in the collection of James Bateman, Esq., at Knypersley, in 1843, being shortly afterwards described by Lindley (*Bot. Reg.*, 1843, Misc. p. 2). It was figured in the *Refugium Botanicum* (ii. t. 92) by W. W. Wilson Saunders, being described as a very interesting and curious little Orchid, producing its flowers very freely. It was said to thrive on a block of wood or cork, on moss, in the temperature of the Mexican house, being kept moderately dry when at rest. It is very rare in cultivation at the present time, and there are several allied genera that are now seldom met with.

MILTONIA ROEZLII.

UNLIKE Miltonia vexillaria, the beautiful M. Roezlii never seems to have become common in cultivation, probably because it requires a rather warmer house, and has a way of deteriorating when the two are grown

FIG. 17. MILTONIA ROEZLII.

together. The accompanying figure, however, representing a fine group grown by the late firm of Messrs. Hugh Low & Co., shows what the species is capable of under suitable conditions. The plants were grown in a moist,

warm, and shady house, and a layer of moss round the base of the pots was found conducive to the necessary degree of humidity in the atmosphere, as thrip and red spider have to be guarded against, which soon work havoc among the foliage. The warmer temperature required is explained by the fact that M. Roezlii grows at a lower elevation than M. vexillaria. M. Roezlii is a native of the western Cordillera of New Granada, in the province of Antioquia, notably on the slopes of the hills near the river Atrato, a tributary of the Cauca, and in the hot valleys of the Dagua river, where it grows abundantly on trees and rocks, mostly in shade, and sometimes, according to Messrs. Veitch, associated with Oncidium Krameri-anum. And Roezl remarks that, where it grows, rain falls on practically every day of the year, which would explain the necessity of a moist climate in our houses. Lehmann indicates an extension to an even lower altitude, and he also collected it in Ecuador, it being localised as forests of Rio Bogota and Santiago, in the province of Esmeralda, this variety being very similar to the type. M. Roezlii has white flowers, with a large red-purple blotch at the base of the petals, the crest of the lip being yellow, but in the variety alba the petals are wholly white. The history of the species is given very fully at pp. 249-251 of our sixteenth volume.

CYPRIPEDIUM CAUDATUM.

A FEW years ago Messrs. Sander & Sons obtained among their Peruvian importations a striking form of Cypripedium caudatum, which has been exhibited on several occasions under the name of C. caudatum Sanderæ. At the R.H.S. meeting held on May 8th last it received an Award of Merit (see p. 137), and as the species was originally described from Peruvian materials, a summary of its history may be interesting.

Cypripedium caudatum was originally described by Lindley in 1840 (*Gen. & Sp. Orch.*, p. 531), the author remarking: "I have only seen one mutilated flower of this extraordinary plant, obtained at Lima from an herbarium of Ruiz & Pavon, and sent by Matthews to Sir William Hooker." This Herbarium was made by the Spanish botanists, Ruiz and Pavon, during their exploration of Peru over half a century earlier, and the plant was probably collected in the Huanaco district, where it was afterwards met with by William Lobb, when travelling for Messrs. Veitch. From a dried specimen sent home by Lobb the species was figured in 1844 (*Hook. Ic. Plant.*, vii. t. 658, 659), and it is remarked that Mr. Lobb "sent home dried specimens, and brought living roots with him as far as Jamaica, but they perished while he was there confined with a malignant fever." The plant was again collected in Peru by Davis, when travelling for Messrs.

Veitch between 1873 and 1876, and some ten or more years later by Mr. J. Charlesworth, the former being localised Muna, and the latter Andes of Peru. All the specimens are preserved at Kew, and, so far as we can see, are identical with those recently obtained by Forget when collecting for Messrs. Sander. The significance of this will presently be seen.

It was not until 1850 that the record appeared of C. caudatum flowering in cultivation, but at a meeting of the Horticultural Society held on March 19th of that year we find the following (*Gard. Chron.*, 1850, p. 182): "Mrs. Lawrence exhibited a specimen of the long-tailed Ladies' Slipper (Cypripedium caudatum), an extraordinary-looking species, which has just flowered at Ealing Park for the first time in England. As far as colour is concerned the flowers have little to recommend them, being, as near as possible, greenish yellow; their peculiarity consists in the petals being extended into two long brown narrow tails, which hang down from each side of the blossom, and keep on growing and growing as the flower gets older, till it is difficult at present to say what length they may eventually reach. Those in the specimen exhibited were nearly 18 inches long, and when the flowers are elevated, as they should be, some two or three feet above the foliage, these tails must give them a most remarkable appearance. It comes from Peru, and may now be met with in one or two collections in this country. A Large Silver Medal was awarded to it."

This plant was now figured by Lindley (*Paxt. Fl. Gard.*, i. pp. 37, 40, t. 9, fig. 23), and it is remarked: "This extraordinary plant was for many years known only by a few fragments preserved in Herbaria. At last the collector Hartweg met with it, in wet, marshy places near the hamlet of Nanegal, in the province of Quito; but he did not send it home. Subsequently the collectors of Messrs. Veitch, of Exeter, and of Mr. Linden fell in with it, and to the latter is, we believe, owing its introduction to Europe in a living state. Since that time a weaker specimen has blossomed with Mr. C. B. Warner. The accompanying plate is a faithful representation of the plant as it flowered at Ealing Park, but is far from giving an adequate idea of the natural beauty of the species. The great sheathing bracts, which in South America were as large as those of a Heliconia, were mere abortions; and we learn from drawings brought home by Mr. Warscewicz that the flowers are very much larger and finer-coloured in its native swamps. The stains on the lip, for instance, are numerous, and of a rich warm brown, giving quite another appearance to the flowers. On one of Hartweg's dried specimens are remains of six flowers of this sort, placed at the end of a scape more than two feet high." At page 40 it is added: "The following woodcut gives some idea of the appearance of the plant in a wild state."

Thus Lindley introduced a remarkable confusion into the history of

the plant. To begin with, Hartweg's plant is not C. caudatum at all, but C. Hartwegii, Rchb. f., a member of the longifolium group, which was discovered near Quito, about the year 1842, when Hartweg was collecting for the Horticultural Society. To it belongs the great sheathing bracts mentioned by Lindley. In fact, Lindley's woodcut shows a plant of C. caudatum, with the scape of C. Hartwegii, on which are inserted four flower of C. caudatum. The corresponding sheet in Lindley's Herbarium shows a flowerless scape of C. Hartwegii, with a drawing of the original flower of C. caudatum from Ruiz and Pavon. The bracts in the coloured plate, mentioned as mere abortions, are quite normal. There is thus no evidence that Hartweg ever met with C. caudatum. It is stated that he did not send it home, and as the dried specimens, both in Lindley's and the Kew Herbarium, belong to C. Hartwegii, the evidence seems conclusive. The locality "Peru" belongs to the dried specimens collected by Ruiz and Pavon and by William Lobb. As to where Linden's plant (the one represented in the plate) was collected there is no evidence, but we suspect it to have been New Grenada, where Linden had a collector at about this period, and where Lehmann subsequently collected it. The light colour rather recalls the variety Wallisii, but we think the evidence is against it being this. Unfortunately no flower was preserved, but the New Granadan form agrees well, so far as we can see on comparison. As to Warscewicz's remark that the flowers are very much larger and finer-coloured in its native swamps, we believe that this refers to the Central American variety, Warscewiczii, to be presently noticed. There is thus no evidence of the introduction of the original Peruvian form, which we are inclined to think is due to M. Forget.

We now come to two very distinct local varieties, as they are now generally considered. In 1852, Reichenbach described, under the name of Cypripedium Warscewiczii (*Bot. Zeit.*, 1852, p. 692) a plant that had been collected by the Polish botanical explorer, Warscewicz, on the mountains of Chiriqui, Central America. This was ultimately introduced, and afterwards figured under the name of C. caudatum roseum (*Rev. Hort.*, 1867, p. 133, with plate), a name which very well describes its difference from the original form. It soon became generally cultivated, and now bears the name of C. caudatum var. Warscewiczii.

The variety Wallisii, which is characterised by its rather smaller flowers and lighter colours, was originally described as Selenipedium Wallisii (*Rchb. f. Xen. Orch.*, ii. p. 189, t. 181), from materials obtained by Gustav Wallis in Ecuador, where Lehmann subsequently collected it. The latter's specimens are localised as Rio Zamona, at 800-1000 mètres. The plant collected by Davis at Huanaco, Peru, which was subsequently referred here, belongs to typical C. caudatum. R.A.R.

CALENDAR OF OPERATIONS FOR JUNE.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE climatic conditions have taken a most welcome turn since my last notes were written, and the warmer weather has been responsible for the rapid strides the plants have made during the past month. Growth is active in every department, and flowers will soon be abundant. A collection of Orchids is always interesting, but especially so at this season when so many are in bloom. By these the grower sees the result of his labours, and he anticipates the result of his work by the strength of the new growths that other plants are pushing at this season. There is no more interesting occupation than Orchid-growing, in spite of numerous disadvantages, for it provides one continual change, which makes many other occupations appear quite monotonous.

The general conditions of the different houses as regards temperatures, watering, ventilation, and atmospheric moisture should be conducive to growth, therefore liberal conditions should prevail in every department. The general conditions laid down last month are suitable for the present one, with the single exception that, should hot weather prevail, even more humidity may be maintained. No plants can make satisfactory growth at this season in a dry parched atmosphere. Again, moisture must be used in conjunction with heat, as a cold, saturated atmosphere, even at this season, may do much harm. In the cultivation of plants there are a few essentials to be always kept in mind. Firstly, that they are dependant on the quarters we provide for them. Secondly, that they must not suffer, either from too much or too little water at the root, the latter especially at this season, and, thirdly, that a rootless plant is incapable of taking up water from the compost. A little careful thought and consideration is a great aid to successful plant cultivation.

CATTLEYAS AND ALLIES.—These comprise so many beautiful plants, and produce such a succession of flowers at this season that they are indispensable, and from their diverse characters it is quite obvious that the necessary treatment will vary somewhat as regards when repotting should be done. It is perfectly safe to undertake this operation at any season of the year, with the exception of the dull dark days of winter. But whenever it is done, the compost must be kept comparatively dry until the new roots have taken hold of it freely. It is absolutely necessary that this detail should be carefully observed. Plants of C. Warscewiczii (gigas) that are now making strong growths, and showing flower sheaths, should have abundance of heat and light, and be supplied with water whenever they become dry. This plant, owing to its short season of growth, should receive generous

treatment after it starts, or it will not develop strong pseudobulbs. Plants that are not strong enough to produce flowers should be given a position where they receive the maximum of light, so that they may attain flowering size as quickly as possible. C. Dowiana and its variety aurea, having now started into growth, should also receive generous treatment, so that they may build up satisfactory growth. C. Warneri and its hybrids thrive under similar conditions to the preceding, and the earliest plants will be producing flowers. The different varieties of C. Mossiæ and C. Mendelii will be in bloom, and make a great display. There will also be many hybrids of the Cattleya, Læliocattleya, Brassocattleya, and Sophrocattleya families in flower, and they may be treated as advised for Cattleyas in previous numbers. There is no need to treat each hybrid separately, but with the original species it is quite different, as they mostly come from different localities, and have their own requirements. These plants are as easily grown as any others, and are at the present day much better understood than formerly; the great point to be observed is to keep them in a sweet and healthy compost, apply water with care, and maintain a sweet and buoyant atmosphere at all times.

THUNIAS are now pushing up their flower scapes, and may be given waterings with weak liquid manure. Owing to their short flowering season they are not grown as much as formerly. As a means of extending their flowering season, it is advisable when the first blooms expand to remove them to cooler and drier quarters.

MILTONIA VEXILLARIA, with its varieties and hybrids, make a wonderful display of beautiful flowers during the summer months, and must not be overdone with moisture at the root at this season, neither must they suffer for the want of it. When the flower spikes are removed, the plants should be carefully rested in the Cool house, and watered sparingly until the new growths push forth roots, when any necessary repotting can be attended to.

ODONTOGLOSSUMS, ODONTIODAS, and other plants of a similar nature will also make a brilliant display in the Cool house, and, speaking generally, there is now an abundance of flowers. The plants in bloom are best arranged by themselves so that no spray from the syringe or other instrument may reach them, as this induces premature decay.

CYPRIPEDIUMS.—Plants of the C. bellatulum and niveum section that have recently flowered, with their hybrids, may have attention as regards new rooting material, if required. Well-rooted specimens in good material, with room to develop, should not be disturbed. They are best grown in pots, with ample drainage. A suitable compost is made up of two parts peat fibre and sphagnum moss, with some small pieces of mortar rubble added, and all thoroughly mixed together. The plants must be potted firmly, and should be elevated close to the glass in a warm Intermediate

house. Owing to their thick glaucous leaves these plants are able to withstand drought better than Cypripediums which have thinner leaves, therefore should only receive water when necessary, and in no case should they be watered overhead. Seedling Cypripediums, as they become large enough, should be placed in small pots, so that they may get well rooted before the winter.

DENDROBIUMS.—D. Phalænopsis and D. formosum are autumn-flowering species, and if they have not already been repotted they should be attended to without delay. Being plants which produce few roots, shallow pans are the best receptacles, and as they have a short growing season, they should receive generous treatment from the time they commence to push until the completion of the pseudobulbs. Dendrobiums of the evergreen section, such as D. Farmeri, may also have attention as regards repotting, should it be necessary. A clean fibrous compost answers their requirements. Owing to the difficulty in obtaining material and labour, undoubtedly many more plants will have to stand over as regards repotting than in normal times, therefore a close watch should be placed upon the application of water to the compost in which any plants are growing, especially where this is known to be more or less decomposed.

CŒLOGYNES.—The species which produce pendulous flower spikes are best grown in shallow pans, which may be suspended when in bloom, where their flowers will be seen to great advantage. Such plants as C. asperata, with its hybrid, and others that produce flowers at this season, may be repotted, if necessary, when their growths are well advanced, and about to push forth roots. Owing to the immense quantity of water necessary for the welfare of these plants when in full growth, the pots or pans must be well drained, and the compost should be made moderately firm. They delight in abundance of heat, but resent strong sunshine. C. pandurata, and others of a rambling nature, are difficult to keep in a compact form, therefore it is advisable to sever the rhizome behind the second or third bulb, and when the back bulbs have produced a break they should be potted into small receptacles, when they will soon make flowering plants.

GENERAL REMARKS.—Many people are suffering from the great shortage of labour, and only with the greatest difficulty are they able to keep their plants growing and carry on generally. In the interest of horticulture it is essential that the many valuable plants in the numerous collections in the country should be maintained in good health, so that there is not too much arrears to make up when normal times return. Most of us have some experience of dealing with refractory subjects, and horticulturists are always at war with the enemies of their plants, and now that so many are away there must be no relaxation, or the result will soon be apparent in reduced vigour and a diminution in the number of flowers.

MILTONIA VEXILLARIA WESTONBIRT VAR.

NOW that hybrid Miltonias are being raised so successfully, we have a great accession of the forms having a large claret-coloured blotch, or mask, as it is often called, on the base of the lip, these having originated

Fig. 18. MILTONIA VEXILLARIA WESTONBIRT VAR.

largely from the use of the remarkable variety of M. vexillaria known as memoria G. D. Owen. The Westonbirt variety, here figured, has very similar characters to the last-mentioned. It was exhibited by Lt.-Col. Sir George L. Holford at the Temple Show in 1907, and was awarded a First-

class Certificate, the figure representing the plant as exhibited. The blotch, which bears a curious resemblance to a butterfly in shape, forms a very strong contrast to the rest of the flower, which it sets off to great advantage. A few hybrids between Miltonia vexillaria and the crispum section of Odontoglossum have been raised, and it would be very interesting if this concentration of colour could be carried over to these Odontiodas. We have little doubt that the experiment is being attempted.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on May 8th, when there was an improved display of Orchids, and the visitors were more numerous. The awards consisted of four Medals, three Awards of Merit, and one Preliminary Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), James O'Brien (hon. sec.), W. Bolton, Gurney Wilson, R. Brooman White, Walter Cobb, C. J. Lucas, W. H. Hatcher, J. Charlesworth, J. E. Shill, T. Armstrong, Pantia Ralli, F. J. Hanbury, Stuart H. Low, R. A. Rolfe, and J. Wilson Potter.

AWARDS OF MERIT.

CYPRIPEDIUM CAUDATUM SANDERÆ.—A handsome form, believed to be dentical with the Peruvian form on which the species was originally established. The ground colour is yellowish white, with copious emerald green veining on the sepals, and some purple veining on the petals, while the infolded side lobes of the lip are white, with a zone of brown spots, and a brownish tinge on the front of the pouch. Exhibited by Messrs. Sander & Sons.

DENDROBIUM ILLUSTRE VAR. FLORENCE BARTELS (pulchellum (Dalhousieanum) × chrysotoxum).—A handsome form, bearing an inflorescence of seven large cowslip-yellow flowers, with a large claret-purple blotch near the base of the lip. Exhibited by Sir Jeremiah Colman, Bart.

ODONTIODA CARDINAL (parentage unrecorded).—A magnificent form, probably a variety of O. Sensation (Oda. Vuylstekeæ × Odm. crispum), of which it has the general character. It bore an ample panicle with 41 well-shaped flowers, heavily blotched with salmon red on a yellowish white ground, and passing to rose at the margin, the apex of the lip being white. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM CRISPUM PRESIDENT WILSON.—A promising seedling, having a flower of good shape, and the broad sepals and petals claret-red with white margin and tips. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a few choice plants, including Odontoglossum Thompsonianum pallidum, bearing a spike of sixteen white flowers, with a few small purple blotches on the segments, and Dendrobium illustre Bartelsianum, a beautiful variety, bearing a raceme of ten flowers, with lighter-coloured blotches than the one certificated, and somewhat broken up by paler, radiating lines.

Leonard Dixon, Esq., Pitlochrie, St. Albans, showed Odontioda Charlesworthii Pitlochrie var., bearing two spikes of eighteen and nineteen dark red flowers, with a somewhat lighter lip.

William Bolton, Esq., Wilderspool, Warrington, showed a particularly fine piece of Dendrobium Wardianum giganteum, from a plant imported three years ago.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including the chaste Cattleya Skinneri alba with 14 flowers, Miltonia vexillaria G. D. Owen, M. Venus, M. Phalænopsis, and Bleuana, Odontoglossum crispum xanthotes, O. pomerens xanthotes, O. Kegeljanii, and others, a brilliant form of Sophronitis grandiflora with orange-scarlet flowers, a number of brilliant Odontiodas, Læliocattleya Canhamiana splendens, pure white, with an intense crimson-purple front to the lip, Lc. Mrs. Temple, and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, also sent a choice group of well-grown plants, including a pan of the rare Habenaria rhodochila, with orange-red lip, Odontonia Norma (Miltonia Warscewiczii × Odm. eximium), a striking thing, having the sepals and petals blotched with claret-red, and the broad, nearly circular lip white, with solid claret-red blotches on either sides of the yellow crest, Cattleya Warneri alba and C. Gaskelliana alba, Brassocattleya Princess Ena (Bc. Maronii × C. Mossiæ), two fine Bc. Veitchii, Cymbidium Alexanderi, fine forms of Odontioda Zenobia, Brewii, and Bradshawiæ, and a few handsome Odontoglossums (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including Læliocattleya Goldcrest, Fascinator, and others, the remarkable Dendrobium Harveyanum, Maxillaria Fletcheriana with three flowers, Vanda cristata, Ornithidium coccineum, Epicattleya radiato-Bowringiana, Cœlogyne prolifera and ochracea, Brassocatlælia Triune, Lycaste Janet-Ross, light yellow with faint rose spotting, and a few good Odontoglossums (Silver Banksian Medal).

Mr. C. F. Waters, Balcombe, staged a group of about twenty Dendrobiums, including examples of D. Rolfeæ, D. Apollo grandiflorum, D. nobile virginale and Cooksonianum, D. Salteri × Rolfeæ, a charming thing most resembling the latter, a fine D. Perfection, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, sent Cymbidium Diana flava, with primrose yellow flowers, and Brassocattleya speciosa grandis, a large lilac-coloured form.

The following meeting was held on May 22nd in the London Scottish Drill Hall, and brought together an increased number of exhibits, which somewhat restricted the amount of floor space, and at times left hardly enough room for the visitors present. This meeting would, under ordinary conditions, have been the usual three days' Show at Chelsea, and the groups, though greatly reduced in size, indicated to some extent what might have been attempted under normal circumstances, though nothing in the way of the usual artistic grouping could be attempted. The Orchid awards consisted of six medals, but individual plants brought before the Orchid Committee were few in number, and only one Award of Merit and one Preliminary Commendation were given.

Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Arthur Dye, R. G. Thwaites, Gurney Wilson, R. A. Rolfe, F. J. Hanbury, Pantia Ralli, E. R. Ashton, T. Armstrong, Stuart H. Low, J. Cypher, H. G. Alexander, J. E. Shill, A. McBean, J. Charlesworth, Walter Cobb, C. J. Lucas, R. Brooman White, S. W. Flory, and W. Bolton.

AWARD OF MERIT.

ODONTIODA GENERAL HAIG (Odm. Aglaon × Oda. Vuylsteakeæ).—A very handsome hybrid, bearing a spike of sixteen large flowers of excellent shape, and the ground colour creamy white, with large cinnabar-red blotches and a violet margin, and the lip lilac, shading off to purple, and with some red blotches round the yellow crest. Exhibited by Messrs. Armstrong & Brown.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM FABIA SPLENDENS (Aglaon × eximium).—A promising seedling, the flower having broad, claret-purple segments, with some white at the margin and apex. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), staged a group of a dozen choice plants, to which a Vote of Thanks was accorded. Noteworthy among them were Odontioda Lady Colman, intense scarlet, O. Bradshawiæ Fire King, bearing an ample panicle of very brilliant scarlet

flowers, O. Bradshawiæ American Triumph, a large orange-scarlet form, and O. Ada (C. Nœtzliana × Odm. Thompsonianum), bearing a spike of claret-red flowers with a deep yellow crest. The others were finely-grown plants of familiar hybrids.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), showed Odontioda Gladys Famille Rose (Odm. Pescatorei × Od. Bradshawiæ), a well-grown plant with handsomely spotted flowers.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), sent cut flowers of Læliocattleya Monte-Rosa (L. purpurata Schrœderæ × C. Suzanne-Hye), white, with the front of the lip purple, Lc. Schroglossa (Lc. callistoglossa × C. Schrœderæ Niobe), Lc. Anaconda, Lc. Aphrodite and Lælia purpurata Schrœderæ.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group of finely-grown plants, to which a Silver-gilt Flora Medal was awarded. With few exceptions the plants had been raised in the establishment, and among them we noted a fine set of Miltonia vexillaria, including the brilliant var. Lyoth, with good forms of M. Charlesworthii, Bleuana, and Venus, a beautifully-shaped Odontoglossum crispum roseum, several good O. c. xanthotes, O. eximium xanthotes, O. Aireworth, O. Doris, O. Isonzo (illustrissimun × crispum), rich claret purple, with white margin and tips, O. Trentino (spectabile × Alexanderi), heavily blotched with purple on a white ground, O. Gorizia (Jasper × President Poincaré), a handsomely-blotched hybrid, O. Hybla (eximium × percultum), dark reddish purple with white margins, Miltonioda Ida (M. Warscewiczii × Odontioda Cooksoniæ), bearing a spike of twelve bright red flowers, with the front of the lip lilac, Odontioda Hiawatha (Charlesworthii × Coronation), a fine red-purple self with a yellow crest, some fine forms of O. Charlesworthii, Zenobia, Joan, Lambeauiana, and Bradshawiæ, Læliocattleya Fascinator, Lc. Nell Gwynne, Cattleya Mossiæ Wageneri, and various other good things.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Flora Medal for a fine group, largely consisting of Odontoglossums and Odontiodas, with a few Læliocattleyas and white Cattleyas. We also noted a good plant of Cœlogyne pandurata with a fine spike, two nice plants of Cirrhopetalum Collettii, Miltonia vexillaria G. D. Owen with two spikes of six flowers each, two well-grown Milton Phalænopsis, Brassocattleya Veitchii splendens, and Læliocattleya Aphrodite with six flowers. Among the Odontoglossums were O. Aglianum (Aglaon × Lambeauianum), claret-red with white margin and the broad lip white in front, and O. Bullecourt (Wilckeanum × Mars), a fine thing, heavily blotched with red on a yellow ground, shading off to white at the margin, and the petals finely fringed, while Odontioda was represented by examples of O. Henryi,

beechensis, Charlesworthii, Vuylstekeæ, Seymouriæ, and O. Madeline auriferum (Oda. Charlesworthii × Odm. crispum), a fine clear yellow form blotched with red on the sepals and petals.

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Silver Flora Medal for a fine group, including good examples of Brassocatlælia Triune, forms ot Lælia purpurata, Phalænopsis amabilis, Brassocattleya Veitchii and Maroniæ, good examples of Epidendrum gattonense (Boundii × xanthinum), bearing heads of deep yellow flowers, Chysis bractescens, Masdevallia Houtteana and Veitchii, the pretty little Leptotes bicolor, Miltonia Bleuana Stevensii, the brilliant Renanthera Imschootiana, Cypripedium Rossetti, Odontoglossum citrosmum, Thompsonianum, excellens, Fascinator, Jasper, armainvillierense, and crispum, Dendrobium thyrsiflorum and chrysotoxum, Læliocattleyas, and others, the plants being also examples of good culture.

Messrs. J. & A. McBean, Cooksbridge, also received a Silver Flora Medal for a choice group, very prettily arranged with Adiantums, and including examples of Odontioda Brenda (C. Nœtzliana × Oda. Bradshawiæ), a brilliant scarlet hybrid most recalling an improved form of the Cochlioda parent, O. Elaine (C. Nœtzliana × Oda. Charlesworthii), another brilliant scarlet, good examples of O. Vuylstekeæ, keighleyensis, Lambeauiana, Bradshawiæ, and Lutetia, some good Odontoglossum crispum and O. c. xanthotes, Miltonia Bleuana and some good M. vexillaria, Oncidium McBeanianum, Cattleya Dusseldorfiii Undine, C. Mendelii striata, blush white with purple stripes on the petals, some good Læliocattleyas, and other interesting things.

Messrs. Stuart Low & Co., Jarvisbrook, were awarded a Silver Banksian Medal for a good group, in which Cattleyas and Læliocattleyas were well represented, noteworthy among them being C. Mossiæ grandis and Excelsior, two richly-coloured forms, the white C. Dusseldorfii Undine and C. Magali-Sander, the richly-coloured Lc. Vesuvius (Haroldiana × Veronique), three good Lc. Ballii, Sophrocatlælia Marathon, forms of Lælia purpurata, Oncidium serratum, Cypripedium Gertrude with four flowers, Eria amicta, and other interesting things.

Messrs. Sander & Sons, St. Albans, also received a Silver Banksian Medal for a good group, in which forms of Læliocattleya Aphrodite, Gladiator, Hyeana, Fascinator, and Isabel-Sander were conspicuous, with good examples of Brassocatlælia Astarte, the striking Maxillaria Fletcheriana, a well-flowered Brassocattleya Veitchii, Cattleya Magali-Sander, Epidendrum fragrans, Cœlogyne ochracea, Sarcopodium triflorum, the curious Megaclinium falcatum, and others.

Messrs. Flory & Black, Slough, sent Læliocattleya Cadorna (Lc. Ceres × C. Mendelii), a promising thing, with blush-white sepals and petals and

the front of the lip bright purple, a fine white Miltonia Bleuana, and the striking Odontioda St.-Quentin (Oda. Zephyr × Odm. Wiganianum), bearing two spikes of bright yellow flowers, with a cluster of red spots on the centre of the segments.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on May 10th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, F. Houghton, J. Lupton, D. McLeod, H. Thorp, and H. Arthur (Sec.).

AWARDS OF MERIT.

Odontioda St. Fuscian (C. Nœtzliana × Odm. Adrianæ), and Miltonia Bleuana Perfection; from R. Ashworth, Esq.

Odontoglossum crispum Matador; from J. J. Bolton, Esq.

Odontoglossum Fascinator aureum; from Dr. Craven Moore.

Odontoglossum Leeanum (Odm. Calypso × Odm. Rouge Dragon); from W. R. Lee, Esq.

Cattleya Mendelii Fairy Queen; from Mr. J. Birchenall.

FIRST-CLASS AWARDS OF APPRECIATION.

Odontoglossum promerens xanthotes Conyngham var., and O. crispum Ishtar; from Dr. Craven Moore.

A Silver-gilt Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a choice group, including some excellent Odontoglossums and Brassocattleyas, Læliocattleya Canhamiana alba, Miltonia Bleuana rosea, Odontioda Zenobia, and other fine things.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport), for a fine group, in which Odontoglossums and Odontiodas were well represented, with some good Læliocattleyas, varieties of Cattleya Mendelii, Miltonias, and others.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine general group, in which some good Cattleyas, Brassocattleyas, Odontoglossums, and Dendrobiums were conspicuous, with examples of Renanthera Imschootiana, the rare Sarcochilus Fitzgeraldii, and others.

A number of interesting exhibits were staged by Dr. Craven Moore, Victoria Place, Manchester (gr. Mr. T. Arran); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. J. N. Kitchin); J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law); Mr. J. Evans, Lymm, and Mr. J. Birchenall, Alderley Edge, several of which appear in the above list of Awards.

The Annual Meeting of the Society was held at 2.30 p.m., the Rev. J.

Crombleholme presiding. The Report and Balance-sheet were adopted. R. Ashworth, Esq., was re-elected President, and the Vice-Presidents, Officials, and Committee were all re-elected.

The prizes were presented to the successful exhibitors as follows:—

Ashworth's Silver Cup, to Dr. Craven Moore.

J. J. Bolton's Gold Medal, to the Rev. J. Crombleholme. Gardener's Prize to Mr. E. Marshall.

J. J. Bolton's Silver-gilt Medal, to R. Ashworth, Esq. Gardener's Prize to Mr. S. Davenport and Mr. W. Gilden.

Botanic Society of Manchester's Gold Medal, to Mr. E. Rogers.

A. R. Handley's Prize, to Mr. C. Branch.

Charlesworth & Co.'s Objet d'Art, to Dr. Craven Moore. Gardener's Prize to Mr. T. Arran.

Cypher's Gold Medal, to R. Ashworth, Esq. Gardener's Prize to Mr. S. Davenport and Mr. W. Gilden.

A. Hanmer's Silver Cup, to R. Ashworth, Esq. Gardener's Prize to Mr. S. Davenport and Mr. W. Gilden.

McBean's Silver Trophy, to Dr. Craven Moore. Gardener's Prize to Mr. T. Arran.

P. Smith's 1st Prize. to Mr. S. Davenport and Mr. W. Gilden; 2nd Prize, to Mr. T. Arran; 3rd Prize, to Mr. E. Marshall.

The Secretary is pleased to report that all the prizes have again been offered for the coming session, and the complete list will appear in the member's cards, as before, in due course. The competitions will commence at the next meeting, on June 7th.

ORCHIDS IN SEASON.

A FLOWER of a promising seedling Læliocattleya is sent from the collection of Thomas Wilcox, Esq., of Walsall. It was derived from Læliocattleya Lucia (L. cinnabarina × C. Mendelii) × C. Mossiæ Wageneri, and has rosy lilac sepals and petals, and the lip bright purple in front, with a bright yellow disc, the influence of the albino parent thus not being apparent. It is flowering for the first time from a pseudobulb some 4½ to 5 inches long, and will naturally improve as the plant gets stronger. A form of Odontoglossum luteopurpureum is also sent.

A curious malformation of the white Cattleya Magali-Sander (Dusseldorfii Undine × Mossiæ Wageneri) is sent by Messrs. Sander & Sons, St. Albans. It has only a single petal, which occupies the erect position normally occupied by the missing dorsal sepal, the two lateral sepals and the lip alone being normal. It is probably only an accidental freak.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during June, on the 5th and 19th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for July 3rd.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on June 7th and July 5th, but there will be no meeting during August. With the advent of September the usual fortnightly meetings will be resumed. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

SEEDS OF CYMBIDIUM TRACYANUM.—We are indebted to Messrs. Charlesworth & Co., Haywards Heath, for a fine seed-pod of Cymbidium Tracyanum, showing an enormous number of seeds. A flower of the species was self-fertilised on October 26, 1915, and the capsule was ripe and cut on April 15, 1917, nearly eighteen months later. The capsule is six inches long, 6½ inches in circumference, and it weighs 117 grammes (slightly over ¼ pound). The number of seeds is estimated at about 850,000, this being obtained by weighing one-fortieth of a gramme of seed, counting it under the microscope, and multiplying it by the total weight of seeds in the pod. It is probably in excess of this number, for care was taken to make it rather an under-estimate. The experiment was only made for scientific purposes, but a small quantity of the seed was sown. The capsule and a drawing will be preserved at Kew. It indicates what an enormous number of plants might be obtained from a single capsule under favourable circumstances.

ANSWERS TO CORRESPONDENTS.

C.H.L.—Epidendrum alatum, Batem., hitherto known as a native of Guatemala and British Honduras.

T.W.—The Odontoglossum is a small form of O. luteopureum, and may have got the name O. crispum from having come out of an importation of the latter.

J.T.—Many thanks for the letter and information, which is being suitable acknowledged. The former communications failed to reach us.

J.L.H.—Many thanks. The copies shall be dealt with as directed.

J.J.B.—A particularly interesting flower, a note of which has had to be held over.

BEGINNER.—The only means of keeping the temperature of the Odontoglossum house down during a spell of hot weather is by the ample use of shading, and a liberal damping down of the walls, pathways, and stages. If this is properly attended to, little permanent harm may be anticipated.

Will subscribers kindly note that posted copies are sent direct from Kew, and forward all communications respecting them to the Editor? Inattention to this involves delay and unnecessary reposting of letters.

The Orchid Review

VOL. XXV. JULY, 1917. No. 295.

OUR NOTE BOOK.

THE appearance of an albino of Lælia lobata, as recorded on page 155, is an interesting matter, and the curious thing is that it has crept into cultivation, as it were, unobserved, and under a wrong name, which would hardly have been possible had the real status of the plant been known. The history of the species is also given, and, considering that it first flowered in cultivation as much as seventy years ago, it is curious how little is known about it. The late Louis Forget, whose work as a collector naturally gave him facilities for observation, states that the species "is found on the Gavea, principally at Sapiatoba and Cabo Frio, near Rio de Janeiro, where it grows in touch with Cattleya Forbesii, C. guttata, and C. intermedia" (*O.R.*, xx. p. 293), and this is the most definite information that we know of. Here is the one station known to Messrs. Veitch, though they speak of it as "believed to spread over parts of Southern Brazil." There is one other vague record of Sao Paulo, from a garden source. Perhaps some of our Brazilian correspondents may be able to give some more definite particulars.

There are other popular garden Orchids of which the details of habitat, and the conditions under which the plants grow naturally, are very meagre, and now that novelties are chiefly raised in our collections at home the reasons for secrecy no longer apply, and we hope that the missing details will be gradually forthcoming. They form an important part of the history of any species, and the information would often be useful to the cultivator, who in any case likes to know something about the plants he grows. To those who take an interest in the origin of species and their distribution over the earth's surface such details are, of course, essential, for species bear a very definite relationship to each other, and each has its own geographical area, more or less extended or circumscribed according to the existence of barriers to dispersal and its means of surmounting them. A mass of useful information of this kind would be available if the experiences of some of our active Orchid collectors could be published, and we believe that some of it exists in the shape of private correspondence and

note books, though a good deal of it is of a personal character, and is probably lost. It is fortunate that some valuable records of this kind have been preserved with herbarium specimens, though in a good many cases such details were not recorded upon the tickets.

The history of the remarkable Uropedium Lindenii, given on another page in connection with that of Cypripedium caudatum, establishes two points very clearly, namely that it must have arisen from the latter as a mutation or reversion, and that it has succeeded in establishing itself independently and extending its area to stations where the Cypripedium is not found. This fact invites an enquiry as to the particular insect which fertilises the Cypripedium, and how the Uropedium has managed to succeed so well without its pouch. It is the best instance that we can recall of the establishment of what has been considered as a distinct genus by mutation. It is curious that C. caudatum Wallisii should have independently made the same attempt, and it would now be interesting to try the effect of self-fertilising the Uropedium. It is known that abnormal forms can be perpetuated by seed, but they seldom succeed in the far more serious task of establishing themselves independently in a state of nature.

Freaks and monstrosities are, of course, common among garden plants, and are preserved, and even worked for, because of their decorative value, but they are rare or evanescent in nature. They represent for the most part discordant combinations of characters, which cannot maintain themselves in the struggle for existence with the environment. Apostles of the seed pan and the breeding pen seem to think that the origin of these freaks is subject to definite laws, and that their study will solve the whole question of the origin of species in nature. One extreme geneticist claims that this problem can alone be solved by such methods, and that "in discovering the methods of evolution the initiative is denied to the palæontologist, the zoogeographer, and the morphologist." But the geneticist cannot begin at the beginning, and he is as unable to estimate what have been the governing forces as he would be to control them if known. And there is always the time element to reckon with. One experimenter has devoted "some years of study" to the habit alone of a single species of plant, and has published pages of statistics, and he remarks that "many more years must pass before the work can be completed." And when conclusive results are obtained they may not apply to some other species which has a totally different habit, to say nothing of the existence of multitudinous other characters. A study of affinities, combined with the geographical distribution of closely allied species, is far more likely to afford a clue to what has been the course of evolution in the past.

UROPEDIUM LINDENII.

WHEN summarising the history of Cypripedium caudatum (pp. 130-132), we omitted to mention the remarkable Uropedium Lindenii—now generally regarded as a variety or peloriate state of C. caudatum—on the ground that it deserved a chapter to itself.

Uropedium Lindenii was described by Lindley in 1846 (*Orch. Linden*, p. 28), on materials collected three years previously by Linden, below Lake Maracaybo, on the Cordillera of Merida. The author remarked that it had all the characters of Cypripedium except that the lip was flat and extended into a long narrow tail, much like the petals in shape. The habit was said to be exactly that of C. insigne. It was subsequently collected by Schlim, near Ocana, at an altitude of 1500 metres, growing on rocks and trees; and presumably living plants were sent home, for in 1850 Lindley remarked: "We learn from Mons. Pescatore that it has now produced two flowers in his great collection at the Chateau of St. Cloud, near Paris. The sepals are white streaked with green, and more than $3\frac{1}{4}$ inches long; the petals and lip full 21 inches long, very velvety at the base, white streaked with green; the tails have the colour of wine lees." He also called it the most remarkable terrestrial Orchid yet known (*Paxt. Fl. Gard.*, i. p. 72).

One of the flowers was sent by M. Pescatore to the distinguished French botanist, M. Ad. Brongniart, who published an elaborate paper (*Ann. Sc. Nat.*, ser. 2, xiii. pp. 113-118, t. 2), showing that the plant had three fertile stamens, and suggesting that it was an abnormal, peloriate state of Cypripedium caudatum. This hypothesis, however, was rejected by Reichenbach, who afterwards figured the plant (*Xen. Orch.*, i. p. 32, t. 15), on the ground that the two had never been found together, and that the number of observed plants of the Uropedium was too great to admit of its being regarded as an accidental form.

In 1860 a fine figure and very full account of the plant appeared in *Pescatorea* (t. 2), and here the locality in which Linden discovered it is said to have been on the meadow-like savannahs lying between the Cordillera of Merida and Lake Maracaybo, growing among underwood composed chiefly of Weinmannia, Eugenia, and climbing ferns (Gleichenia), at an altitude of about 5000 feet—a locality, by the way, where Wagener subsequently collected it. The altitude is important, because Lindley had originally recorded it as 8500 feet (on what authority is not clear, because there is no collector's ticket with his original specimen), and the error is repeated in several of the early accounts.

In June, 1863, a plant flowered with Mr. John Day, who made a pen and ink sketch (*Orch. Draw.*, ii. t. 47), and added the following interesting note: "Mr. Blunt, Messrs. Low's collector, writes: The habitat of this plant is most peculiar—sometimes it is found terrestrial and in exposed sunny places, and at other times on the cooler parts of the Cordillera growing on trees on parts were decayed leaves have collected; but still I should count it amongst the Orchids requiring a temperate climate, as in these spots it is to be found most frequently." In May, 1896, Mr. Day painted it in colour (xix. t. 41), adding: "The plant is so much like Selenipedium caudatum that it is not easy to distinguish it therefrom. I believe it comes from some part of New Granada. It is very difficult to get exact information of the native habitats of Orchids. The nurserymen who send their collectors are very jealous of imparting any precise information."

An important contribution to the history of the plant was made by the collector Roezl, in 1888 (*Orchidophile*, i. p. 570). He remarked that it was found in various localities in New Granada, at altitudes of 4000 to 6000 feet, growing indifferently upon trees, on dead trunks, on rocks, or on the road side, but never in great abundance, perhaps a dozen or half a dozen plants being found in the same spot. He had found it on the route from Buenaventura to Cali, at the summit of the Cordillera, at the same height as Masdevallia Chimæra. At Ocana, whence it had mostly been imported of recent years, it was known to the natives as *Linda* (the belle). In other localities it was rare, but he had met with it at Sonson, near Medellin, growing with innumerable Masdevallias and Odontoglossum luteopurpureum; near Frontino, with Miltonia vexillaria; and, lastly, at Guindio, on the high Cordillera of Cartago viego. These various localities were some eight days' journey apart. He had been asked whether it was not a variety of Cypripedium caudatum, but he was bound to reply in the negative, for although he had frequently found the Uropedium he had never met with C. caudatum.

It may here be added that Consul Lehmann collected the plant on the Cordillera of Cali, growing on trees at 1000 to 2000 metres, and in the forest of Cajamarca, W. Andes of Rondanillo, at 1500 to 2000 metres, and that Burke also met with it, when collecting for Messrs. Veitch, the specimen being simply localised Columbia.

Further light has now been thrown on the probable origin of this remarkable Orchid. In 1886 a plant of Cypripedium caudatum in the establishment of Mr. William Bull, at Chelsea, produced a flower having three free sepals, three fertile anthers, and a curiously flattened lip, fairly intermediate between the normal lip and the lip of Uropedium (*Gard. Chron.*, 1896, ii. pp. 268, 269, fig. 54). In June, 1891, a plant of C. caudatum var. Wallisii in the collection of Sir Trevor Lawrence, Bart.,

Burford, produced a scape, bearing one normal flower and one having three fertile anthers, and a lip almost exactly like the one on Mr. Bull's plant in shape. Lastly a plant of the same variety in the establishment of Messrs. Linden, Brussels, produced a spike of flowers identical with Uropedium in every respect but colour, this being of the delicate light tint of the variety in question (*Lindenia*, vii. t. 321). Both the latter were received alive, eliminating all possibility of mistake, and are now preserved at Kew.

It is now clear that Uropedium Lindenii originated as a sport or mutation from some form of Cypripedium caudatum, and has become diffused from its original birth-place, probably on account of its coming true from seed, as some other abnormal forms are known to do. It must thus be regarded as a permanent mutation—not a distinct genus in the ordinary sense—just as Paxtonia rosea is a mutation of Spathoglottis plicata, and Dendrobium normale a mutation of D. fimbriatum. We do not know whether any attempt has been made to raise Uropedium Lindenii true from seed. Three hybrids were raised from it by Messrs. Veitch, C. macrochilum, C. Penelaus, and C. giganteum (the other parents being respectively C. Roezlii, C. calurum, and C. grande), but in each case the hybrid had a normal lip, which may be regarded as due to the stronger influence of the normal parent. It would be interesting to try the effect of self-fertilising the Uropedium, and thus throw light on what is probably occurring in nature. It may be added that the Uropedium was the pollen parent of the two first hybrids mentioned, but the seed-bearer in the third.

It now remains to indicate the geographical distribution and differences of the forms of C. caudatum already mentioned. The original C. caudatum was collected by Ruiz & Pavon, it is believed in the Huanuco district of Peru, where, probably, W. Lobb afterwards met with it, while Davis collected it at Muna. C. caudatum Sanderæ, as far as we can see, is identical, and Mr. F. Sander writes that this was collected by Forget in the extreme south of Peru, but he cannot get at Forget's letters at present. It is a big form, and the different plants are uniform in colour (as described at page 137). The richly-coloured Central American var. Warscewiczii was originally collected by Warscewicz, at Chiriqui, Costa Rica, where Lehmann subsequently collected it, his specimens being localised as Rio Caldera, Chiriqui. This form extends further north, having also been collected in British Honduras by Skinner, and in Guatemala by Turckheim, whose specimens are localised as Pansamala, Dept. Alta Verapaz, 3800 ft. The smaller, light-coloured var. Wallisii is a native of Ecuador, where it has since been collected by Lehmann, at Zamona, on the eastern Andes of Loxa, at 500 to 1300 metres. Lastly, we have the abnormal variety Uropedium (Uropedium Lindenii) whose characters and distribution have been pointed out above.

R.A.R.

MISTAKES IN ORCHIDOLOGY.

THE mention (at p. 131) of the curious made-up figure, in which a scape of Cypripedium Hartwegii is shown growing from a plant of C. caudatum, and producing flowers of the latter, reminds us of a few other remarkable Orchidological mistakes.

There is the fine coloured plate of Galeandra Baueri in Batemen's *Orchidaceæ of Mexico & Guatemala* (t. 19), on a copy of which Lindley (in his own Herbarium) has written: "This is made up of two very different plants." It was not further explained, and Reichenbach merely added (*Walp. Ann.*, vi. p. 649): "Icon. phantastica horribilis florulenta foliis cauleque minus correctis." The origin of the mistake may be found in Bateman's text, where it is explained that a Mexican plant in the collection of Mr. Barker produced flowers in the autumn of 1839, and "from these, assisted by native specimens more recently discovered by Mr. Skinner in Guatemala, Miss Drake prepared the exquisite drawing from which the accompanying plate was taken." Some clue as to what these native specimens may have been was given by Lindley, in 1840, when figuring the plant (*Bot. Reg.*, xxvi. t. 49), for he speaks of "Another plant now to be found in several collections, and called Galeandra Baueri, but which is much more branched, and has not yet flowered." At all events the habit, as figured by Miss Drake, is exactly that of Chysis bractescens, a species which during recent years has been collected in Guatemala by Turckheim, and which we strongly suspect was also collected there by Mr. Skinner, though we have failed to find a record. Curiously enough, the error has been perpetuated by Puydt (*Orch.*, p. 197, fig. 193), who has copied Miss Drake's drawing without acknowledging the source.

And this is not the sum total of the confusion, for Bateman's Galeandra Baueri is not the original one of Lindley, which is a native of Guiana. Both Bateman and Lindley discuss the difference in the native country, and, curiously enough, when four years later the true Guiana plant did appear in cultivation, Lindley redescribed it under the name of G. cristata, adding one more to the comedy of errors. The Mexican plant is now known as G. Batemanii Rolfe (*Gard. Chron.*, 1891, ii. p. 430).

Such a case is fairly paralleled by that of Phalænopsis amabilis, which had long been known as a native of Java until the name was applied by Lindley to a plant that had been introduced to cultivation by Cuming from the Philippines, and which Lindley then considered identical. The curious thing, however, was that when a few years later the true Javan plant was introduced, by Thomas Lobb, Lindley failed to recognise it, and so

redescribed it under the name of P. grandiflora. This mistake was detected by Reichenbach, who renamed the Philippine plant P. Aphrodite, but he adopted the illogical position that the erroneous names should be retained for garden purposes only, hence the long time which elapsed before the correct names were adopted. The climax was reached when long afterwards the Javan plant was introduced in quantity under the name of P. Rimestadiana, under which it is still often cultivated.

Another kind of made-up figure is seen in the case of Masdevallia racemosa showing over a dozen flowers expanded at the same time (*Veitch Man. Orch.*, v. p. 58), whereas in nature they would appear in succession over a considerable period. This mistake is probably explained by the fact that at the original sale of living plants, in 1883, a dried specimen was exhibited on which the numerous flowers had been carefully arranged as if all open together. It was shortly afterwards spoken of as "the last new arrival, M. racemosa Crossii, the dried flowers of which, borne from ten to twelve on a spike," &c. (*Gard. Chron.*, 1884, i. p. 736). The original of this drawing was presented to Kew, where it is now preserved. In cultivation it is very rare to see more than two flowers expanded at the same time.

Misfortune dogged the footsteps of another early Orchid. Anguloa uniflora, the original species of the genus, was described and figured by Ruiz & Pavon in 1794, from materials collected in Peru. In 1844, Lindley published a figure of what he supposed to be the same (*Bot. Reg.*, xxx. t. 60). He remarked: "We some time ago announced the appearance in this country of a new species of the long-lost genus Anguloa, concerning which so many mistakes have been made. We are now able, by the kindness of Mr. Barker, of Birmingham, to publish the very Anguloa uniflora itself, which he was so fortunate as to flower in April last. We believe he received it among Linden's collections from Columbia; according to Ruiz & Pavon it is found in precipitous places about Muna and Chincao, in Peru, and profusely, in the woods of Tarma, where it is called *Carpales*." This view passed current until some eight years ago, when a Peruvian Anguloa, said to have been imported from Moyobamba by Mr. Kromer, with Cattleya Rex, was exhibited at a meeting of the R.H.S. by Mr. Kromer. In the meantime an Anguloa eburnea, supposedly of Columbian origin, had been described and figured (*Will. Orch. Alb.*, iii. t. 133), with which I immediately identified Mr. Kromer's plant, and subsequent comparison of all the materials and figures showed that this was the original A. uniflora of Ruiz & Pavon, while the Columbian plant was distinct, and for this Linden's name of A. virginalis had to be adopted. The history of the confusion has been fully recorded (*O.R.*, xvii. pp. 316, 317; xx. p. 106).

A most remarkable mistake occurs in the last plate of Mr. Bateman's big book already mentioned (t. 40), where the males of two distinct species

of Cycnoches—they were long supposed to be "sports"—are shown growing from the same pseudobulb of C. Egertonianum. The mystery was long inexplicable, for it did not appear to be a case of the now well-known sexual dimorphism, both being males, and even belonging to different

Fig. 19. CYCNOCHES EGERTONIANUM (Miss Drake's drawing).

sections of the genus. But the appearance, in 1895, of *bona-fide* female flowers of C. Egertonianum, in the Kew collection, demanded a solution, and as a possible one suggested itself on a careful study of all the facts, the case was put before Mr. Bateman, who was then living. It was that as the two

racemes were not borne simultaneously, and as the green flowers "were still hanging on the stem" (possibly much withered) when the purple ones appeared, they might have been restored by the artist by the help of an

Fig. 20. CYCNOCHES EGERTONIANUM (♂ on left, ♀ on right).

earlier drawing. Mr. Bateman's very characteristic reply may be seen at page 57 of our sixth volume, and we can only add that it is unfortunate that the inflorescence was not carefully preserved instead of remaining

"many months on the plant." It would, of course, be absurd to blame Miss Drake wholly for the error, because nothing was then known about sexuality in the genus, and she may have acted upon instructions, but it shows the necessity of caution when plates are being made up from different materials. A photographic reproduction of this remarkable plate is given on page 152, and the succeeding one shows more nearly how it might have been represented had Mr. Raffill's camera then been available. This is a combination of two photographs of the same plant of C. Egertonianum, made in successive years, and showing the female flowers on the right, and the males on the left, and the latter shows that Miss Drake's drawing still leaves something to be desired in the way of accuracy.

In the case of the allied genus, Catasetum, the existence of sexuality led to an even greater mistake, for Lindley established a genus for what afterwards proved to be only the females of Catasetum. Darwin connected the two, but introduced another error with regard to Myanthus (see Rolfe in *Journ. Linn. Soc.*, xxvii. pp. 206-225, t. 8). R.A.R.

(To be concluded.)

DENDROBIUM LUTWYCHEANUM VAR. MITCHELLII.—A flower of a particularly interesting and beautiful hybrid Dendrobium has been sent from the collection of J. J. Bolton, Esq., of Pendleton, near Manchester. Mr. Bolton writes: "It is from a seedling raised by the oldest Orchid grower in this country, Mr. E. Mitchell, Sale, Cheshire, who was for many years gardener to the late Dr. Ainsworth, and the raiser of Dendrobium Ainsworthii. He is still devoted to his profession, though now 82 years of age. After many unsuccessful attempts he managed to raise the plant from which this bloom has been taken. The parents are D. Wardianum × Ainsworthii splendidissimum grandiflorum, the Wardianum carrying the seed pod. I think it is a little beauty." It is certainly a handsome thing, the flower being over $3\frac{3}{4}$ inches broad across the petals, and of excellent shape. The sepals are rose-purple, and the petals similar above, but much lighter below, while the lip has a very broad, slightly feathered, maroon disc, with a yellow ring round it, this passing into white, and then rose-purple at the apex. Both the petals and lip are very broad, the latter measuring one and three-eights across, with a correspondingly ample disc. It is a variety of D. Lutwycheanum (*O.R.*, ii. p. 202), from the collection of S. G. Lutwyche, Esq., having the same parentage as the original, but of superior decorative merit, and we have much pleasure in connecting it with Mr. Mitchell's name, as desired. D. Clio, for which Sir Trevor Lawrence received an Award of Merit from the R.H.S. in March, 1896 (*O.R.*, iv. p. 122), obtained from the reverse cross, is another variety, and now stands as D. Lutwycheanum var. Clio.

LÆLIA LOBATA AND VAR. ALBA.

NEARLY seventy years ago Lindley described, under the name of Cattleya lobata, a Brazilian Orchid which flowered with Messrs. Loddiges, of Hackney, in May, 1847 (*Gard. Chron.*, 1848, p. 403). He remarked: "The flowers are of one uniform purple, tinged with violet, with some rich crimson veins on the lip. It is nearly allied to C. labiata, of which, perhaps, it is a variety. The excessive lobing of the petals and lip, and the comparative small size of the latter, seem, however, to point to a specific difference. At all events it is as well marked a form of the genus as C. Mossiæ, and, for the purpose of cultivators, may be looked upon as a distinct species." Six years later, Reichenbach described the same thing as Lælia grandis var. purpurea (*Bonplandia*, 1854, p. 89), from a Brazilian plant which flowered with Messrs. Booth, of Hamburg, and a year later it became L. Boothiana (Rchb. f. in *Allg. Gartenz.*, xxiii. p. 322). It was subsequently figured (*Rchb. f. Xen. Orch.*, i. p. 218, t. 91). The species ultimately became Lælia lobata (*Veitch Man. Orch.*, ii. p. 74, with fig.), under the rule for retaining the earliest specific name. After a long interval we are able to record the appearance of an albino of the species. At the R.H.S. meeting held on June 5th last, a plant was exhibited by Messrs. Charlesworth & Co., Haywards Heath, which they obtained from the Continent under the name of L. purpurata Latona, this being all that is known of its origin. The absence of the purple lines which are invariably present in white forms of L. purpurata (the whole flower being uniformly white), and the smaller size, immediately caught our eye, and a subsequent comparison of the five-flowered inflorescence and a pseudobulb and leaf, kindly presented by Messrs. Charlesworth, confirm the opinion formed that it is the albino of L. lobata. Apart from colour it proves an almost exact match of Lælia Rivieri (Carr. in. *Rev. Hort.*, 1874, p. 331, with plate), based on a plant which flowered with M. Rougier-Chauviere, of Paris, and which is said to have been received from New Grenada. This, however, must have been a mistake, for the plant is synonymous with the Brazilian L. lobata. We have seen no dried native specimen of the species, and Cogniaux, in the *Flora Brasiliensis*, is only able to mention the provinces of Rio de Janeiro and Sao Paulo, both from garden sources. Messrs. Veitch only know of a single station, on the coast of Rio de Janeiro, where it grows on a bare rock that is washed by the ocean below, and where it is fully exposed to the sun from morning to night. L. purpurata Latona also flowered with Messrs. Charlesworth a year ago (*O.R.*, xxiv. p. 179), and we suspect that the L. purpurata alba Ashworthiæ (*l.c.*, p. 182), may be identical.

R.A.R.

CALENDAR OF OPERATIONS FOR JULY.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE change in the climatic conditions during the last few weeks, almost from arctic to tropical, has been most beneficial to those Orchids which revel in heat and light, and many which at one time appeared late in producing their flowers are in bloom practically at their normal season, so rapid has been their production of flowers. With the increased heat and light, it has been possible to treat all the plants in the warmer divisions more liberally, and growth in most cases has been rapid. In the Cool divisions some pains has been necessary to keep the temperature down and the houses cool and moist, conditions in which these plants revel at this season. The temperatures and general treatment as advised for the summer months must be continued, and every encouragement given to the plants to make clean and healthy growths.

VENTILATION AND SHADING will require much attention, as the young growths are at present unable to withstand much sunshine until they have become inured to it. When growth is complete, there is ample time to ripen or consolidate it, so that the plants may produce flowers of the best quality. During the recent spell of hot weather it has been possible to use the ventilators of the different houses to the best advantage, and the extra amount of fresh air has also been greatly to the plants' advantage. Plants grown under this rational treatment are better able to withstand any slight set-backs than those grown under stuffy conditions. The ventilation of the different houses depends entirely upon the class of plants grown in them, and in all cases Orchids resent a dry parched atmosphere: therefore it is quite obvious that the ventilators must not be thrown open in a haphazard way, but a continuous circulation of fresh air should be maintained at all times without causing draughts. If draughts will cause stiff neck to the cultivator, what does it cause the plants? Suffering, undoubtedly, and imperfect development and even death, are the accompaniment of this condition of things.

WATERING at this season must have most careful attention. Those plants which are well rooted in the compost, and making rapid and vigorous growth, may receive it in abundance, while those newly-potted, and those which have not yet commenced to grow, must have it applied with caution.

POTTING in most establishments will this season suffer from the shortage, not only of labour, but also of material. Owing to this serious trouble it will be advisable to hold over all plants that are growing in a sweet and healthy compost, repotting those in which the rooting material is found to be decomposed. No plant can make satisfactory root growth in

a decomposed material, and it is useless to attempt it, hence the necessity of repotting any that are in that condition. A sweet, healthy rooting material is of the first importance, and to keep it so requires some attention from those entrusted with the use of the water pot.

LÆLIAS.—The Mexican Lælias are in full growth, and the bright weather is to their liking. Only sufficient shade should now be given to prevent scorching. Lælia purpurata, and the hybrids derived from it, should enjoy a short rest after their flowering season is passed, and any necessary repotting may be taken in hand when new roots are observed to be pushing. The cool-growing members of this family, such as L. pumila, præstans, Jongheana, Dayana, and others are developing new growths. If a light position can be found for them in the Cool house they will thrive there much better during the summer months than in the Intermediate house. They may remain there until their flowers show, when they may be returned to the Cool Intermediate house for the winter. These plants may be afforded fresh rooting material whenever they begin to make new roots. Comparatively speaking, these plants are of small growth and are best grown suspended at a moderate distance from the roof. They delight in a reasonable quantity of light and air at all times, with a plentiful supply of water to the roots when in full growth. As soon as growth is complete only sufficient to prevent shrivelling is necessary. The slender-bulbed L. harpophylla, which one does not see much of nowadays, also succeeds in the Cool house during the hottest part of the year.

LÆLIOCATTLEYAS AND ALLIES.—There are so many hybrids at the present day, and of such complex parentage, which succeed under similar treatment, that for the present I purposely put them together. The plants I refer to are those now in bloom, or that have just passed that stage. They are best kept slightly on the dry side at the roots until new growth, and with it new roots, are produced, when any necessary repotting can be undertaken. At this season they will take plenty of water at the roots.

CATTLEYAS.—C. Gaskelliana, C. labiata, and others which make their growths during the summer months, and produce their flowers during the autumn, will have made considerable progress, and already the pseudobulbs and flower sheaths are formed. They should receive water whenever they become dry, and be placed in a position where they may receive the benefit of light and air to consolidate their growth. As soon as these are mature, and the flowers commence to push through the sheaths, much less water will suffice. C. Mossiæ, C. Mendelii, and their numerous varieties have now passed out of bloom, and may have any necessary attention as regards repotting as soon as root action recommences. C. Bowringiana, with its hybrids, may also have attention in this matter when the young growths have attained some considerable size and are about to push roots.

ODONTOGLOSSUMS.—A dry atmosphere is most detrimental to these plants at this season, and every effort must be made to keep their quarters cool and moist. Plants of any of the dwarf-growing Mexican section, such as O. Cervantesii, Galeottianum, madrense, Rossii, maculatum, and others that are in need of new rooting material may receive attention when the new growths are partially made and about to push roots. They are best grown in shallow pans, and should be suspended at the warm end of the Cool house. The compost must be pressed firmly around the plants, and must be watered with care until the plants are re-established.

COCHLIODA AND ITS HYBRIDS.—The whole of this family are also best grown in shallow pans, and they succeed under the same conditions as the Odontoglossums. C. Nœtzliana, vulcanica, and sanguinea may have attention as regards repotting in the same way as Odontoglossums.

TRICHOPILIAS.—The different species of this interesting genus will have passed out of bloom, and will now be forming new growths, and when these are about to push roots is the best time to undertake any necessary repotting. They succeed in the same compost as Odontoglossums, and should be grown in shallow pans, and given an even temperature all the year round. An excess of water at the roots at any season is harmful, as their foliage and pseudobulbs soon spot.

CYPRIPEDIUMS that produce their flowers during the summer months, such as Stonei, Lawrenceanum, Rothschildianum, &c., may be given more root space, should they require it, immediately their flowers fade.

DENDROBIUMS.—The repotting of the evergreen, or the thrysiflorum group, of this large genus should now be completed. The Cool-growing species, such as D. Jamesianum, infundibulum, and others, as they pass out of flower and start into growth, should have attention at the roots should it be necessary. They must be potted firmly, in fact all Orchids which are grown in the materials now available must be potted so.

ONCIDIUMS of the cool section, such as O. Forbesii, crispum, Gardneri, concolor, Marshallianum, and others which may require attention as regards repotting, may have their requirements attended to when the young growths attain the size of three to four inches in length and are about to emit new roots. A similar compost to that used for Odontoglossums will answer their requirements, but rather more half-decayed oak leaves may be added. The heat-loving section, such as O. Lanceanum, luridum, carthaginense, and others, may also be afforded fresh rooting material as they reach the desired condition. These plants revel in a light position in the warmest house, with abundance of water whilst in active growth, but when growth is complete only sufficient moisture should be supplied to keep their leaves plump. Their thick leaves are capable of standing considerable drought.

GENERAL REMARKS.—The work for the present month will be much like that of the preceding one, and the general routine of potting, watering, &c., will take up much time. The cultivator has always some problem to solve, which not only makes his calling interesting, but the experience often enables him to master other difficulties as they arise. Many of us miss the happy re-union of friends at the different Shows, which have had to be abandoned during these abnormal times, but let us hope that before another year comes round we shall be able to enjoy them more fully under that great and glorious blessing, Peace.

SARCOPODIUM LYONII.—At the R.H.S. meeting held on June 5th a Cultural Commendation was awarded to a very fine specimen of the plant known in gardens as Dendrobium acuminatum, bearing six pendulous racemes of rose-purple flowers. In a record of the award (*Gard. Chron.*, 1917, ii. p. 237), it is remarked: "The species, which is also known as D. Lyonii, is a native of Manila, and probably identical with the Bornean D. Treacherianum." The note includes three distinct plants. Dendrobium acuminatum was described in 1905 (Rolfe in *Ames Orchid*, i. p. 86), from dried specimens collected on Mt. Mariveles, in the province of Bataan, by Whitford, the flowers being stated as white and yellow. It was shortly afterwards figured (*Ames Orchid*, ii. t. 17). Two years later what was supposed to be the same species was figured from a native specimen collected in the same province by Mr. W. S. Lyon (*Gard. Chron.*, 1907, ii. p. 210, fig. 88), and the flowers were stated to be deep peach pink, darker towards the base, and the lip rich velvety wine-red. In August, 1909, Mr. Lyon's plant flowered with Mr. J. W. Moore, Bradford, and was awarded a First-class Certificate from the R.H.S. (*O.R.*, xvii. p. 280). A coloured figure also appeared (*Orchis*, ii. p. 73, t. 16), and it was then discovered that Mr. Lyon's plant was not the original D. acuminatum, but an allied species, which was shortly afterwards described as D. Lyonii, Ames (*Orchid*, ii. p. 73, t. 177). The confusion was pointed out in 1910 (*O.R.*, xviii. 239), when the distinctness of Lindley's genus Sarcopodium were discussed. This purple-flowered species is now known as Sarcopodium Lyonii, Rolfe. D. Treacherianum was described and figured in 1881 (Rchb. f. MSS., *Bot. Mag.*, t. 6591). It was imported by Messrs. Hugh Low & Co., Clapton, and was named in compliment to W. H. Treacher Esq., Colonial Secretary, Labuan. It has erect, few-flowered racemes of lilac-purple flowers. It is now known as Sarcopodium Treacherianum, Rolfe. S. acuminatum does not appear to have been introduced to cultivation, but there is a closely allied Philippine plant, S. stella-silva (Loher & Kranzl., in *Fedde Rep. Nov. Sp.*, vii. p. 40), which we have not seen. It has white flowers, with some purple stripes on the lip, and a yellow crest.—R.A.R.

COCKROACHES.

AT p. 152 is given an illustration of Cycnoches Egertonianum from Mr. James Bateman's classical work, *The Orchidaceæ of Mexico and Guatemala*. The text of this work was embellished by a number of tail-pieces, more or less appropriate—often depicting scenes and objects from the native countries of the Orchids illustrated—and for two of these the aid of that humourous artist, the late George Cruikshank was invoked. One of them is here reproduced, accompanied by Mr. Bateman's quaint

Fig. 21. A STIRRING SCENE, DEPICTED BY GEORGE CRUIKSHANK.

description of the incident. He remarks: "Those who have ever received a case of Orchidaceæ from the Tropics, know full well that the opening of it is attended with the most intense and feverish excitement: and those who have not been so fortunate, will be glad to gather some notion of such *stirring scenes* from the accompanying Vignette, which, it is needless to say, is from the inimitable pencil of Cruikshank. If we read aright the address on that box, the cargo belongs to one of the most staunch and scientific collectors of his day, and we, therefore, only the more deeply deplore the calamity with which, it is but too clear, his importation has been visited. The conduct of his people is, however, beyond all praise; and we earnestly pray that their gallant exertions may be crowned with triumphant success. It is indeed a cruel thing to expect Epiphytes, and receive only

Cockroaches; to see the *very* case which ought to have been richly stored with *Orchidaceæ* prove, upon opening, to contain nothing more than

'Lucifugis congesta cubilia *blattis ! !*'

VIRGIL.

. . . . . curramus præcipites, et
Dum jacet in ripâ, calcemus Cæsaris hostem.'

JUVENAL."

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting of the Society was held at the London Scottish Drill Hall, on June 5th, when there was a moderate display of Orchids, the awards consisting of three Medals, two Awards of Merit, and one Cultural Commendation.

Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, F. J. Hanbury, Pantia Ralli, C. H. Curtis, Walter Cobb, J. Charlesworth, T. Armstrong, R. Brooman White, W. Bolton, C. J. Lucas, R. G. Thwaites, and R. A. Rolfe.

AWARDS OF MERIT.

CYPRIPEDIUM NIVEUM THE GRANGE VAR.—A particularly fine variety, having very broad petals and lip, with numerous minute purple dots on the lower part of the segments. An exceedingly well-grown plant, exhibited by Phillip Smith, Esq., Manor House, Ashton-on-Mersey (gr. Mr. E. W. Thompson).

MILTONIA VEXILLARIA VAR. SIR MERVYN BULLER (v. memoria G. D. Owen × v. Leopoldii).—A very large and handsome form, the flowers being bright rose, and the very broad lip bearing a solid claret-purple mask at the base, with short rays in front, and on the basal angles, and broad lines of the same colour at the base of the lateral sepals. Exhibited by Messrs. Armstrong & Brown.

CULTURAL COMMENDATION.

DENDROBIUM ACUMINATUM.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart., Gatton Park, for a splendidly-grown specimen, bearing six long pendulous spikes of rose-coloured flowers, with the segments darker at the base, and producing a fine effect.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), sent a plant of the pretty little Saccolabium ampullaceum, with erect spikes of deep rose-purple flowers; also forms of Thunia, and one or two other interesting things.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Cresswell), sent well-grown plants of Læliocattleya Aphrodite Bryndir var., white with the front of the lip dark purple, and Lc. luminosa Bryndir var., a finely coloured form.

R. Brooman White, Esq., Arddarroch, Garelochead, showed cut blooms of several fine forms of Odontoglossum crispum of the older types, and of a few hybrids raised in the collection; a very interesting series.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group, including several hybrid Miltonias, Odontioda General Haig Orchidhurst var., with a spike of nineteen flowers, finely spotted with Indian red and margined with rose, O. Joan Orchidhurst var., reddish claret with deep rose mottling on the lip, the brilliant scarlet Odontioda Chantecleer Orchidhurst var., some good white Cattleyas, Odontoglossum Epicasta magnificum, O. Menier var. St. Vincent, and other interesting things.

Messrs. Stuart Low & Co., Jarvisbrook, received a Silver Banksian Medal for a good group, in which forms of Cattleya Mossiæ and Mendelii were conspicuous, with some good Læliocattleyas, Odontoglossums, and other interesting things.

Messrs. Sander & Sons, St. Albans, were also awarded a Silver Banksian Medal for an interesting group, containing some good Læliocattleya Fascinator, with several other showy species of the season, and a few rare botanical Orchids.

At the meeting held on June 19th there was a fine display of Orchids, the awards consisting of one Gold and three other medals, two Awards of Merit, and two Preliminary Commendations.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, J. Wilson Potter, R. A. Rolfe, Pantia Ralli, E. R. Ashton, J. Charlesworth, W. H. Hatcher, C. H. Curtis, Walter Cobb, C. J. Lucas, and R. Brooman White.

AWARDS OF MERIT.

MILTONIA PRINCESS-MARY (Hyeana × Bleuana).—A fine thing, bearing a spike of seven blush-white flowers, with a pale lilac area at the base of the petals, and the broad lip having a large purplish rose mask at the base, from which extend a number of thin radiating lines. Exhibited by Messrs. Armstrong & Brown.

ODONTIODA THE PRINCE (Oda. Charlesworthii × Odm. Ernestii).—A large and attractive hybrid, the flowers being of good shape, and the colour light lilac-purple, with some red-brown blotching in front of the yellow crest of the lip. Exhibited by G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden).

PRELIMINARY COMMENDATIONS.

MILTONIA FAIRY-QUEEN (Princess-Mary × vexillaria memoria G. D. Owen).—A very promising seedling, bearing a single flower of excellent shape, and the colour white, with a very large, triangular, ruby-purple mask at the base of the lip, this being somewhat paler and broken up into short radiating lines in front. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM FELICITY (Olympia × armainvillierense).—A promising seedling, the flower being of excellent shape, and the colour white, with a cluster of red-brown blotches in the middle of the sepals and petals. Exhibited by Messrs. Charlesworth & Co.

GENERAL EXHIBITS.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. H. Redden), sent the handsome Odontioda Aurora, copiously blotched with red on a whitish yellow ground, and the margins of the sepals and petals lilac-rose.

H. J. Elwes, Esq., Colesborne Park, Cheltenham, showed several interesting cut blooms, including two Læliocattleyas, Cypripedium Reginæ, Orchis foliosa and O. latifolia, Bletia Shepherdii, Thunia Marshalliana, and a few Cypripediums.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group of splendidly-grown plants, to which a Williams Gold Medal was awarded. The leading feature was a fine series of Miltonia Charlesworthii, M. vexillaria var. Lyoth, and other derivatives of M. vexillaria memoria G. D. Owen, these bearing over 300 spikes, and we noted also fine examples of Odontioda Brewii, Madeline, Bradshawiæ, Cooksoniæ, and others, a lot of blotched Odontoglossums, O. harvengtense aureum (triumphans aureum × crispum xanthotes) having light yellow flowers, blotched with darker yellow, but without the usual brown markings, O. eximium xanthotes, O. Othello, Læliocattleya Aphrodite, Rudolph, and Ulyssess, Cattleya Warscewiczii with spikes of five and six flowers, Lælia tenebrosa Walton Grange var., and L. purpurata Latona, which latter proves to be the albino of L. lobata (see p. 155), the whole forming a very attractive display.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Banksian Medal for a choice group, in which Odontoglossums and Odontiodas were prominent, the former including O. Uroskinneri with two spikes, with examples of O. armainvillierense, eximillus, a well-blotched O. Pescatorei, Mauretania, and others, and the latter some good O. Henryi, Lutetia, Cooksoniæ, heatonensis, &c. We also noted Cypripedium Maudiæ and C. Holdenii, Cattleya Saturn alba, and a few other interesting things.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, received a Silver Banksian Medal for a showy group, containing forms of Miltonia vexillaria, Cattleya Warscewiczii, Renanthera Imschootiana, Læliocattleya Vesuvius,

var. Aurora (Veronique × Haroldiana) with coppery rose sepals and petals and a claret-purple lip, Lælia tenebrosa, Sophrocatlælia Orpetiana, the rare Oncidium maizæfolium, and others.

Messrs. Sander & Sons, St. Albans, also received a Silver Banksian Medal for a good group, including Læliocattleya Gottoiana Imperator, a brilliant form bearing two spikes of flowers, Lc. General Pershing, a fine white flower with the front of the lip deep purple, Lc. Arras (C. Mossiæ × Lc. Aphrodite), a promising hybrid, Lc. Canhamiana Rex with three spikes of flowers, Lc. Martinetii, Lc. Aphrodite Rex, two Cymbidium Veitchii var. primulinum, the pretty little Epidendrum organense, Brassia verrucosa, and a few others.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on June 7th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. D. A. Cowan, J. C. Cowan, Dr. Craven Moore, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, A. Hanmer, A. Keeling, J. Lupton, D. McLeod, H. J. McNab, W. Shackleton, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATES.

Miltonia Charlesworthii var. Conyngham, a large flower, 3½ inches across, and M. Isabel-Sander, flushed heliotrope, with a mask of oriental purple; from Dr. Craven Moore.

Cattleya Mossiæ Reineckeana var. Ashworthiæ, a good form, with white sepals and petals, and a lip of brilliant colour; from R. Ashworth, Esq.

Cypripedium niveum var. Dorothy Clare, a very fine white flower; from the Rev. J. Crombleholme.

Cattleya Mossiæ var. Barlac Snowdrop, a large flower of good shape and colour; from S. Gratrix, Esq.

Læliocattleya Domos superba (C. Mossiæ × Lc. Dominiana), a well-set flower, with lip of brilliant colour and nearly three inches across; from P. Smith, Esq.

Odontoglossum Phœbe splendens (cirrhosum × crispum), a large, well-set flower, with richly-coloured spots; from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Cattleya Mossiæ Madge and Odontoglossum Pescatorei grande; from P. Smith, Esq.

Odontoglossum Minos (harvengtense × Lambeauianum), and Cattleya Mossiæ Lord Kitchener; from R. Ashworth, Esq.

Odontoglossum eximium Conqueror; from J. J. Bolton, Esq.

Miltonia Lyoth var. Conyngham (chelseiensis × G. D. Owen); from Dr. Craven Moore.

Læliocattleya Aphrodite var. Lily Cowan; from S. Gratrix, Esq.

FIRST-CLASS AWARDS OF APPRECIATION.

Cattleya Mossiæ Mrs. R. Ashworth; from R. Ashworth, Esq.

Odontoglossum Modus (Dora × Rolfeæ); from Dr. Craven Moore.

CULTURAL CERTIFICATE.

To Mr. S. Davenport, for a fine specimen of Cattleya Mendelii.

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. S. Davenport), for a choice group of Cattleyas and Odontoglossums, with Miltonia Hyeana Ashlands var., M. Charlesworthii, M. vexillaria, G. D. Owen, and a few others.

A Large Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a very fine group of Cattleyas and Læliocattleyas, with examples of Miltonia vexillaria, Leptotes bicolor, Dendrobium Dalhousieanum, Oncidium Marshallianum, and other good things.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), and to Messrs. Sander & Sons, St. Albans the former for a group of Cypripediums, including a number of home-raised seedlings, and the latter for a good general group, in which Læliocattleyas were conspicuous, and Cattleya Charm was a very interesting hybrid from C. Percivaliana and C. Dusseldorfii Undine.

A number of interesting exhibits were also sent by Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); S. Gratrix, Esq., Whalley Range (gr. Mr. Jemmison); O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers); J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law); Messrs. Charlesworth & Co., Haywards Heath; Messrs. Hassall & Co., Southgate; Messrs. Keeling & Sons, Bradford, and Messrs. J. & A. McBean, Cooksbridge, several of which appear in the above list of Awards.

SARCOCHILUS MINUTIFLOS, BAILEY.—A plant of the curious little Queensland Sarcochilus minutiflos, received from the late Mr. F. Manson Bailey, Colonial Botanist, Queensland, is now flowering at Kew. The species was discovered at Eidsvold, Queensland in December, 1913, and was shortly afterwards described and figured (*Bailey, Comp. Cat. Queensl. Pl.*, pp. 446, 447, fig. 974). It is nearly allied to S. Hillii, F. Muell., and grows in dense tufts of three to four inches high. The leaves are very narrow, and the slender spikes bear numerous small blush-white flowers, with a deep orange crest to the lip, and some purple stripes on the side lobes, while the front lobe is reduced to a globular mass of small white hairs. It is a very interesting little plant. Two other Australian species of Sarcochilus that have also recently flowered at Kew are S. Hartmannii and S. Fitzgeraldii.—R.A.R.

EPIDENDRUM CILIARE IN COSTA RICA.

EPIDENDRUM ciliare is the commonest and most widely distributed Orchid in Costa Rica with any pretension to beauty, growing from near sea level up to 4000 feet at least, its zone of greatest abundance being 2500 feet, at which elevation large clumps grow on Gliricidia maculata or Erythrina. Though it seems to have preference for these hosts, it is a most adaptable plant, and will thrive on old piled stone walls, though with less luxuriance than on an arboreal support. On the Atlantic slope it blooms in February and March, and its flowers, pure white at first, changing to yellowish with age, are deliciously fragrant. Those on old stone walls by the roadside near Santiago synchronise with those of E. radicans, but I have never seen a hybrid between them, and though for several years crosses have been made each way no successful result seems to have occurred. I have frequently fertilised E. ciliare with many species of Cattleya, and have sown the resultant seeds on fence trees in our immediate vicinity, and I hope that some day other hands may reap the benefit of the experiments.

In the days when Cattleya Dowiana was scarcer and much sought after, E. ciliare was often mixed with the genuine plant, and when in poor condition, with monophyllous bulbs, it bears a faint resemblance to the famous Cattleya, and has probably disappointed many an incautious buyer. It has been known to aspire to even higher rank, being palmed off as the *Guaria blanca* (C. Skinneri alba), though in this case the resemblance between the plants helps the fraud.

C. H. LANCASTER.

Cachi, Costa Rica.

[Mr. Lancaster sends a photograph of the plant growing artificiallly on the trunk of Croton gossypifolium, which he remarks is not at all a sympathetic host to Orchids. It shows a large number of flowers, but owing to the mass of surrounding vegetation we fear that it would not reproduce well.]

SEEDS OF CYMBIDIUM TRACYANUM.—At page 144 a note appeared of an interesting experiment by Messrs. Charlesworth & Co. to ascertain the number of seeds in a capsule of Cymbidium Tracyanum, and a rough estimate of over 850,000 was arrived at. After the note was written Mr. L. A. Boodle, of the Jodrell Laboratory, kindly undertook to make an estimate, and he arrived at a total of rather over 1,561,000. The method adopted was to count 2,000 seeds under the microscope and then weigh them. The weight, when dry, was .0081 gramme, and this multiplied by

the total weight of seeds gave the number last mentioned. It does not include, however, a small quantity of seeds which were retained for other purposes, and may still be regarded as an under estimate. The apparent discrepancy is partly due to the difficulty of isolating and counting such minute seeds, and an assistant who did this intentionally omitted some in counting so that any error should be on the right side. Further, on opening the capsule fully we found that a considerable number of seeds had not been shaken out, so were omitted from the earlier estimate. The number approximately equals that found by Mueller in a capsule of Maxillaria in South Brazil, but is far below the estimate of Dr. Scott in the case of a native capsule of Cycnoches chlorochilon received from Messrs. Hugh Low & Co., which was nearly four millions (O.R., xvii. p. 168).—R.A.R.

ORCHIDS AT KEW.

A PLANT of Arachnanthe Lowii at Kew collection is showing two good spikes, and will be an interesting object when the flowers are expanded, as the different colour of the basal flowers always excite remark. It would be interesting to know by what insect this remarkable Bornean Orchid is fertilised in a wild state. The plant of Vanilla Pompona growing on the roof of one of the Warm houses is now carrying several seed pods, as a result of artificial fertilisation. Its thick fleshy fruits are used in a fresh state for flavouring purposes, but are said to be difficult to dry, and hence have not the economic value of those of the well-known V. planifolia. Many other interesting Orchids have bloomed recently, and among them a fine plant of Bulbophyllum virescens, with a succession of six or seven umbels of its striking flowers, and a plant of Vanda Charlesworthii, a rare and handsome natural hybrid from V. cœrulea and V. Bensonii, has borne a seven-flowered spike.

A SLUG DESTRUCTIVE TO ORCHIDS.—In a greenhouse at Boulder, Colorado, devoted principally to the growing of tropical plants, numerous slugs are said to have recently appeared, and have proved exceedingly destructive to the plants. The case is recorded by Mr. T. D. A. Cockerell (*Nautilus*, xxx. p. 120), who remarks: "I have before me a Cattleya flower absolutely ruined by them. There is every reason to believe that the slugs came with a consignment of Orchids from Denver, but how they reached Colorado is unknown." The slug has been identified as Limax arboreum var. subrufa, a form common in Belgium, and it is suggested that it may have reached America with garden plants from that country.

ORCHID NOTES AND NEWS.

THREE meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during July, on the 3rd, 17th, and 31st. The Orchid Committee now meets at 11.45 a.m.

The Manchester and North of England Orchid Society will hold a meeting at the Coal Exchange, Manchester, on July 5th, after which it will adjourn for the summer holidays until September 6th, when the meetings will be resumed. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

We learn from the *Gardeners' Chronicle* that during a severe thunderstorm which took place near Liverpool on Sunday, June 17th, a lot of glass was broken by hail in the house of the Liverpool Orchid Company, Gateacre, while in two other establishments between 400 and 600 squares of glass were broken. The storm lasted from 15 to 20 minutes, during which time extensive damage was done to trees, plants, and greenhouses.

On the preceding and following days there were violent storms in the Thames Valley, accompanied by hail and a deluge of rain, and on the second occasion much damage was done to growing crops by hailstones, though we have not heard that glass was broken.

It is with much regret that we hear of the death, by drowning, on May 4th, of Mr. Lionel Crawshay, son of Mr. de Barri Crawshay, Rosefield, Sevenoaks. Mr. Crawshay was proceeding to Egypt with a detachment, to take up a commission, when the vessel was torpedoed in the Mediterranean. His name is commemorated in Odontoglossum triumphans Lionel Crawshay, one of the finest forms of the species that has yet appeared.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

T.I. – 1. Possibly a form of Cypripedium Berkeleyanum (bellatulum × Boxallii), but not C. Beeckmanii, of which the parentage is somewhat doubtful ; 2. A form or reversion of Odontoglossum crispum ; 3. One of the innumerable forms of O. Andersonianum. There is apparently some mistake in the name of the Epidendrum, but E. arachnoglossum belongs to the same set. We do not find a record of the hybrid mentioned.

C.P., and others.—We regret that we have not yet been able to obtain the volumes and binding cases, owing to shortage of material

The Orchid Review

VOL. XXV. AUGUST, 1917. No. 296.

OUR NOTE BOOK.

THE abnormal conditions of the time and the curtailed railway facilities have led to a greatly reduced number of exhibits at our R.H.S. meetings, but there is plenty of evidence of the steady progress of hybridisation. The exhibits of late have consisted very largely of hybrid seedlings, and it is interesting to note the efforts that are being made to secure improved shape and substance in the flowers. Colour and floriferousness were not wanting among the older hybrids, among which those of Lælia purpurata may be mentioned as examples, but there was room for improvement in shape and substance, and this is gradually being effected by recrossing them with others of better shape, in which the qualities of colour and size were somewhat lacking. The result is seen in the increased number of secondary hybrids that are continually reaching the flowering stage, and the opportunity it affords for further selection.

Selection is the most potent weapon in the hands of the Orchid breeder, and if applied intelligently can hardly fail to yield good results. The days are gone by for promiscuous crossing just to see what will happen. The possibilities of every proposed cross should be carefully considered beforehand, especially in connection with results previously obtained, for the experiments that have already been made are sufficiently numerous in most groups to serve as a guide to what may be expected. And there are a few general principles that may always be applied, the chief of them being always to work with some definite object in view. In a general way, the crossing of extremes should be avoided, especially such extremes as the crossing of dark and light forms together, though this is not always possible when some other special result is aimed at.

A particularly difficult problem is how to combine successfully the diverse qualities found in different parents, for these are usually accompanied by other characters that are not wanted, and the chances are always even that the undesirable qualities may be perpetuated in the offspring. In the latter case the attempt had better be abandoned, though

partial success would justify further experiments. Desirable improvements are seldom achieved at the first attempt.

A few lines of experiment are being followed up systematically, the chief of them being with such outstanding species as Brassavola Digbyana, Cattleya Dowiana, Cochlioda Nœtzliana, Odontoglossum crispum, and Sophronitis grandiflora, and here the limitations of the subject at once become apparent. The remarkable fringed lip of the Brassavola is combined with narrow sepals and petals of a very undecided colour, which is a source of weakness in the hybrids, and these, further, show a great reduction in the depth of the fringe, and the prospects of remedying this by recrossing with the Brassavola are so much outweighed by considerations of further loss in shape and colour that, so far as we know, the cross has never been attempted. In the case of Cattleya Dowiana the yellow colour is invariably lost in crosses with a purple species, and no amount of recrossing has yet led to its return. The golden veining on the lip, however, is always more or less present, though in greatly reduced amount. Things seldom work out just as we desire them, but it would be something of an achievement to combine the remarkable fringe of the Brassavola with the colour of the Cattleya.

Similar considerations apply to the case of Cochlioda Nœtzliana and Odontoglossum crispum, the blending of character seen in Odontioda Bradshawiæ persisting to a great extent in subsequent crosses. The desired "scarlet crispum" will doubtless be achieved in time, but at the cost of continued experiment and judicious selection of parents. It is the surest, and probably the only road to success. With Sophronitis grandiflora, too, many notable results have been achieved, but the scarlet Cattleya is still a desideratum.

In the case of Lælia purpurata, previously mentioned, it was probably its vigour and floriferousness, together with the possibility of combining these qualities with the size and colour of the labiate Cattleyas, that led to its being so much used in the early experiments, and similar considerations would apply to the allied L. tenebrosa, which came into the field at a later date. Lælia cinnabarina, again, has been much used for its brilliant colour, and L. pumila for its dwarf habit and excellent shape, and the primary hybrids thus obtained have been further crossed with the best of the large-flowered Cattleyas, giving a succession of brilliant novelties which now appear so regularly at our horticultural meetings. And there is still an almost limitless field for improvement when happier times return.

The clearing up of some old confusion usually involves an interesting correspondence, and this time we have received several communications,

one of them from an old Orchid importer who has not improbably suffered in the past from erroneous records. At all events he expresses satisfaction in seeing some of the confusions cleared up. It has not always been the case, especially if some unavoidable change of name has been involved, and we have never forgotten a criticism by one who is no longer interested in Orchidology that "such mistakes should never be found out." And it was enquired how it came about that so many such mistakes were made.

The reasons, we fear, were many and various, and perhaps it may be enough to say that the authors did the best with the time and materials at their disposal. It requires a little inside knowledge to appreciate the difficulties involved in finding the correct name of some scrap of an Orchid that may be sent for naming. Imperfect descriptions or those made from undeveloped or abnormal materials, and these often scattered through a multitude of books and pamphlets, drawings with erroneous details, and the absence of authentic specimens are responsible for many mistakes, and some typical examples may be seen in the present issue.

A novelty in Orchids appears to have been discovered, a rival of the celebrated "Corona Keffordii," and of the Scarlet Butterfly Orchid which our readers will doubtless remember became extinct as the result of a most lamentable tragedy. In a tale entitled "Below Zero," in the *Windsor Magazine* for July, Mr. Fred. M. White introduces us to "the priceless Gynandria Monogynia," the gem of Lord Rayburn's magnificent collection. It is said to be "a marsh Orchid from South Africa, and the only one of its kind yet discovered." "I prefer them," said his Lordship, "to the *epiphytes*, exquisite as they are: and that, of course, is a *cypripedium*." It appears to have "a long spike of bloom that shot upwards a foot or more in height in a series of shaded mauve blossoms with centres and cups of virgin gold: the exquisite mass clung to the stem and trembled like a cloud of butterflies." A Cypripedium from South Africa would indeed be a novelty, and with such colours! We regret that we have not yet made its acquaintance.

ODONTOGLOSSUM PESCATOREI VAR. SHORTII.—A distinct and pretty form of Odontoglossum Pescatorei is sent from the collection of Geo. Short, Esq., of Wallasey, Cheshire. It was raised from an ordinary O. Pescatorei fertilised with pollen from the richly-blotched O. P. Veitchianum, the cross being made in 1912, and there are five other seedlings still to flower. It is quite typical in shape, and has a few light violet spots on the centre of the petals, and about twice as many on the sepals, with a pair of larger blotches on the lip. The plant is in a three-inch pot, and carries a five-flowered spike, so that it should improve considerably.

VANDA HASTIFERA.

AN interesting lost species has reappeared in cultivation, namely, Vanda hastifera, Rchb. f., of which a living plant has been sent from Singapore to Kew, where it is now showing for flower. The species was originally described in 1877 (*Linnæa.*, xli. p. 30), from a plant which flowered with M. J. Linden at Brussels, and which is said to have been there labelled Vanda lamellata. No clue to the habitat was given. Some six years later Reichenbach published another note (*Gard. Chron.*, 1883, ii. p. 566), remarking: "It was in 1872 that I saw a single plant of this—a remarkably tall specimen—at Director Linden's. It had a lax raceme of flowers, which surpassed those of Vanda Boxallii, though they were not equal to those of V. tricolor." He then described the characters of the plant, stating that the sepals and petals were light yellow with fine red blotches, and the front lobe of the lip hastate, and covered with hairs at the base, finally adding: "I never again saw a vestige of the plant till quite lately, when, after an interval of more than a decennium, Mr. F. Sander sent me well dried flowers and a good sketch in colours, all prepared in the Sondaic Archipelago by his zealous and intelligent traveller, Mr. Foerstermann. I learn that a small set of living plants is likely to come under the hammer, and we may hope to become better acquainted with this plant, the "Banganayer" (water twig) of the Malays, as I was told by the excellent collector."

The first clue to the habitat of the plant came in 1897, when Messrs. James Veitch & Sons sent to Kew a single flower of a Vanda, labelled "Borneo, Curtis, 1880," which from description I thought might be the same plant, and in December, 1911, a fine set of photographs were sent from British North Borneo, by Mr. H. M. Woolley, from the State Rubber Plantations, Jesselton, which obviously represented Curtis' plant. It is also the Renanthera trichoglottis, Ridl. (*Journ. Linn. Soc.*, xxx. p. 293), collected on limestone rocks, Sarawak, by Mr. Haviland, for there is a specimen at Kew, collected at Kuching, Borneo, in October, 1908, by Hewitt, which is authenticated by Mr. Ridley. The author compares the plant with various allied genera, his remarks tending to show that the structure is somewhat anomalous, though after comparing the dried flower and the photograph we think that Reichenbach was right in referring the plant to Vanda. The re-appearance of the species in cultivation after so long an interval is interesting.

There are several other Malayan Vandas which are still very imperfectly known.

R.A.R.

CYMBIDIUM ALOIFOLIUM AND ITS ALLIES.

A CYMBIDIUM of the C. aloifolium group has been sent for determination from the collection of G. Hamilton Smith, Esq., Northside, Leigh Woods, Bristol. Formerly it would have been referred to C. aloifolium or C. pendulum, but both have been the subject of an almost hopeless confusion, involving several other names, so that the opportunity has been taken of comparing all the materials available. The initial difficulty lies in the fact that both the species mentioned were originally based on old figures, and that the names have been subsequently applied to different plants, as will now be seen.

C. ALOIFOLIUM, Swartz (*Nov. Act. Upsal.*, vi. p. 73), was based on Epidendrum aloifolium, L. (*Sp. Pl.*, ed. i. p. 953), itself founded on the old figure, Kansjiram Maravara (*Rheede Hort. Malabar*, xii. p. 17, t. 8). Of this no original specimen is known, but there is one in Rottler's Herbarium (now at Kew) which is labelled as identical, and which has all the characters of Rheede's plant, and with that afterwards figured as C. aloifolium, Wight (*Ic. Pl. Ind. or.*, t. 1687), a species collected at the foot of the Neilgherry Hills, S. India, and of which the original is preserved at Kew. C. erectum, Wight (*l.c.*, t. 1753), from the Iyamally Hills, is probably a form of the same, as is clearly Aërides Borassi, Buchanan (*Rees Cyclop.*, xxxix. n. 8), collected in Mysore. The species is South Indian, and there are also specimens from Madras, collected by Thompson, S. Concan, by Dalzell, N. Kanara and the adjacent Portuguese territory, by Richie, and Ceylon, by Thwaites and Mrs. Walker. These, with the exception of Rheede's Malabar plant, are included under C. bicolor, Lindl., in the *Flora of British India*, while the name C. aloifolium is applied to a second species, including also C. pendulum. We find no evidence that the true C. aloifolium, in which the front lobe of the lip is relatively long, narrow, and acute, has ever been in cultivation.

C. BICOLOR, Lindl. (*Gen. & Sp. Orch.*, p. 164), was based on a Ceylon plant collected by Macrae, but Lindley wrongly included the Javan C. aloifolium, Blume (not Swartz) as a synonym. The species has since been collected by Thwaites and Mrs. Walker, and there are good drawings at Kew, also dried garden specimens, but we find no published figure, nor any evidence that it occurs outside Ceylon. The sepals and petals are light yellow, with a dark purple line down the centre, and the front and side lobes of the lip, also the column, dark purple. It is easily distinguished from C. aloifolium by the relatively much shorter, broad, obtuse front lobe of the lip.

C. PENDULUM, Swartz (*Nov. Act. Ups.*, vi. p. 73) was based on Epidendrum pendulum, Roxb. (*Corom. Pl.*, i. p. 35, t. 44), said to be a native of the Circar Hills, in the Central Provinces of India. Swartz remarks that it is closely allied to C. aloifolium, but is distinguished by the pendulous, not erect spikes, while Lindley added that the keels of the lip were continuous, not interrupted and arcuate as in C. aloifolium. Lindley (*Gen. & Sp. Orch.*, p. 165) included as synonymous C. crassifolium, Wall. (*Cat.*, n. 7357), a species based on materials collected in E. Sylhet by F. de Silva, and further suggested that the Javan C. pendulum, Blume, might be identical, but this is clearly the Malayan C. Finlaysonianum. We have not seen a dried specimen of Roxburgh's Circar plant, but there is an old specimen in Herb. Hooker, localised Assam Plains (collector unknown), which is apparently the same species. King & Pantling also figure C. pendulum from Sikkim (*Orch. Sikkim.*, p. 188, t. 251), remarking that it occurs at the bottoms of tropical valleys and along the base of the range, and that the lip is continuously bilamellate, as originally described. The flowers are also darker than those figured by Roxburgh. King & Pantling include under C. pendulum the C. Mannii, Rchb. f. (*Flora*, 1872, p. 274), based on materials collected in Assam by Gustav Mann, and judging by the description (for we have not seen a specimen) the reference is correct. The range of the species outside Sikkim, however, must nave been taken from another source. As thus restricted, we find no evidence that the species has been in cultivation.

C. FINLAYSONIANUM, Lindl. (*Wall. Cat.*, n. 7358; *Lindl. Gen. & Sp. Orch.*, p. 164), was based on materials collected by Finlayson, the locality being recorded as Bay of Turon, Cochin China. It is a common and widely diffused species, which also has been much confused. It is the C. aloifolium, Wall. (*Cat.*, n. 7352), based on plants collected in Cochin China, by Finlayson, in Penang, by Porter, and at the River Attran, by Wallich. This, in turn, became the C. Wallichii, Lindl. (*Gen. & Sp. Orch.*, p. 165). The River Attran plant, however, is different, and must be excluded. It is also the C. pendulum, Blume, from Java, and the C. pendulum, Lindl. (*Bot. Reg.*, 1840, t. 25), and var. brevilabre, Lindl. (*l.c.*, 1842, to 24), the latter from Singapore, and the C. tricolor, Miq. (*Choix Pl.*, t. 19). It is common in the Malay Peninsula, near the coast, and extends to Sumatra, Borneo, Celebes, and the Philippines, where it has been collected in the islands of Luzon, Mindanao and Palawan. It is a much finer plant than those previously mentioned, and is readily distinguished by having flowers of about double the size.

There still remains a common and widely diffused plant which has been variously included under the names C. aloifolium and C. pendulum. It was figured as early as 1797 in the *Botanical Magazine* (t. 387), under the

name of Epidendrum aloides, L. (which is a slip for E. aloifolium, as the references show), from an Indian plant which flowered with Messrs. Grimwood and Wykes, Kensington. It is also the Cymbidium aloifolium, Lodd. (*Bot. Cab.*, t. 967), said to have been received about 1790 from China; the C. aloifolium of King and Pantling (*Orch. Sikkim*, p. 149, t. 252); and the C. pendulum of Cogniaux & Goossens (*Dict. Ic. Orch.*, Cymb., t. 6). For this we have not succeeded in finding a specific name of its own, and therefore propose to distinguish it by that of:—

C. SIMULANS, Rolfe.—The species is well distinguished from C. pendulum, Roxb., by the interrupted, curved keels of the lip, and usually by the much broader leaves. The flowers are straw yellow, with a purple stripe down the sepals and petals, while the short, much reflexed, obtuse front lobe has several stripes, and there are others on the side lobes. King & Pantling remark that in Sikkim the two plants grow side by side, that they appear quite distinct, and that no intermediates are found. The species is found on the Khasia Hills, Assam, Chittagong, Burma (including Wallich's River Attran plant), Siam, Tonkin, and in the Yunnan district of China, where, according to Morse, it is common at Lungchow and Szemao, at 4000 feet elevation. There is also a drawing at Kew labelled Hongkong, and said to have been found on hill sides in sheltered places by Gen. Eyre. It is also apparently the Javan plant figured by Blume, and by J. J. Smith, as C. aloifolium (though we have not seen Javan specimens), and according to the latter it extends also to Sumatra and Borneo, which gives the species a remarkably wide diffusion. The confusion with C. pendulum, Roxb., was not at first discovered, hence this is the plant whose history has previously been given under the latter name (*Veitch Man. Orch.*, ix. p. 21; *O.R.*, xxiii. p. 252).

There are additional species of what may be called the section Aloifoliæ, which have largely escaped the above confusion. R.A.R.

ODONTOGLOSSUM CORONARIUM VAR. FLAVUM.—This is a very striking variety of Odontoglossum coronarium which has again flowered in the Royal Botanic Gardens, Glasnevin, and which Sir Frederick W. Moore remarks is quite constant in character, hence the need for a distinguishing varietal name. The usual red-brown markings have vanished, but are represented by a shade of what may be termed light orange-brown, the prevailing colour of the flowers being thus deep golden yellow. As in other xanthic varieties of the red-brown Odontoglossums, the flowers have a very distinct and attractive appearance. An inflorescence was originally sent to Kew as long ago as August, 1897, which has retained its character in drying. It is the only variety of the kind that we remember to have met with.—R.A.R.

ODONTOGLOSSUM CRISPUM AND VAR. LEHMANNII.

THE question as to whether Odontoglossum crispum Lehmannii may not be identical with the original O. crispum with a branched spike described by Lindley, is raised by a correspondent, for the character is not, or very rarely, seen in the fine Pacho type. We believe the two are distinct, for it has been universally believed that O. crispum Lehmannii was a different local race, though very little was known about it until the Lehmann Herbarium became available. The locality of the original O. crispum is not in doubt. It was collected by Hartweg, in 1842, "in woods between the villages of Zipaquira and Pacho," and the fine specimen sent by him to Lindley, from which the species was originally described (*Ann. Nat. Hist.*, ser. 1, xv. p. 256), is preserved in the Herbarium of the latter. It is a very fine specimen, having an inflorescence about three feet high, with five side branches and an aggregate of about twenty-six flowers, with the characteristic shape and breadth of segments, and which were evidently white and unspotted. There is a note in the original description that the flowers were "yellow with purple centres," but this was taken from a Peruvian drawing by Matthews, which is preserved in Lindley's Herbarium, and, though labelled "O. crispum," has nothing whatever to do with Hartweg's plant, though what species it represents has never been cleared up. It is recorded on Hartweg's original ticket, by the collector himself, that "the inflorescence is sometimes branched and sometimes not." This should set at rest any doubts as to the locality and character of the original O. crispum.

The illustration on the opposite page represents a fine plant of what we believe agrees with Lindley's type, and was taken from a particularly well-grown specimen from the collection of Welbore S. Ellis, Esq., Hazelbourne, Dorking, which received a Cultural Commendation from the R.H.S. in March, 1896. The panicle bore nine side branches and an aggregate of sixty-five flowers, shown, of course, greatly reduced in size.

O. CRISPUM LEHMANNII was originally described by Reichenbach in 1880 (*Gard. Chron.*, 1880, i. p. 712), as follows: "This is a rather curious plant, much smaller than the Bogotese one, rather narrow leaved, and with a distinct tendency to produce branched inflorescences as that herculanean plant does in Sir Trevor's Orchid paradise. Mr. F. C. Lehmann, the successful discoverer of this variety, saw as many as fifty flowers in one panicle. There is usually purple and brown tint in the flowers." The habitat was not stated.

The history was afterwards given by Lehmann himself (*Gard. Chron.*, 1883, ii. p. 395), partly in reply to a suggestion (the reference to which is

not given), that the plant was a hybrid, and a summary of his remarks will be interesting. The suggestion was, "the Odontoglot in question is evidently a cross between O. Pescatorei and O. crispum," but this, he remarked, for various reasons, cannot be. For one reason the home of O. Pescatorei is in the north-eastern parts of Columbia, while O. crispum Lehmannii is a native of the southern parts of this country and the

Fig. 22. ODONTOGLOSSUM CRISPUM WITH BRANCHED SPIKES.

northern districts of Ecuador, the two plants being separated from each other by the wide range of over 300 miles—an occurrence quite unknown among the Odontoglossa. Although the colour of the flowers of O. crispum Lehmannii resembles that of O. crispum, I am of opinion that the Odontoglot in question is not a variety at all, but, on the contrary, a good species. Of this I felt sure when I first met with it in 1878, and after having made detailed studies of the entire plant in its natural habitat in

1880, I named it in a letter addressed to my excellent friend, Prof. H. G. Reichenbach, in his honour, as a mark of warm admiration, Odontoglossum Reichenbachianum.

The characteristic features of the plant, which guided me in this direction, were: the far smaller but tougher development of all the organs of the plant; the branching out of the flower-spikes; the great profusion with which the flowers are produced (up to fifty-four on a spike were observed); the somewhat narrow but long perigone; and, *par excellence*, the large, rather broad, and always more or less panduriform labellum. The variations of colour, as well as form and size of the flowers, are just as great with this species as with O. crispum. Five such varieties were specially observed and prepared for the herbarium; these were evidently hybrids between O. crispum Lehmannii and O. atropurpureum, and proved at first sight so distinct in their general structures that I nearly felt inclined to consider them as species.

Lehmann's idea of the distinctness of this plant seems to have been subsequently abandoned, for the new name is not written upon his Herbarium tickets. In any case it can only be considered as a well-marked geographical form of O. crispum.

CALENDAR OF OPERATIONS FOR AUGUST.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

THE continued bright summer weather has been to the liking of all Orchids which require a warm temperature, and it is remarkable the strides many plants have made; whilst plants grown in the cool division have also made good progress where proper methods as regards shading, &c., have been taken.

During the present month the general growing conditions should be maintained in each division, and considerable attention must be given to the ventilation, shading, watering, and damping down, which go to make the conditions of the different houses suitable and healthy for the different plants grown in them. The whole question of successful culture depends entirely on the way these simple details are carried out. Plants, like human beings, cannot thrive under unhealthy conditions, and cleanliness is as important in plant culture as it is to the individual.

During the present month some plants will have completed their growth, while others will be approaching that stage. Those plants which require a long rest should be removed to another house, where they may be gradually inured to a drier and lower temperature, and be subjected to more sunshine and light to ripen and consolidate their growths. Where

this cannot be accomplished they may be arranged in batches and treated accordingly.

DENDROBIUMS of the deciduous section must be examined towards the end of the month, and any that have completed their growth must be removed to cooler and drier quarters, but water must not be withheld, neither must they be placed in too low a temperature. A temperature of about 60°, with plenty of light and air, will answer their requirements for a few weeks to come. It is folly to make fine growths on any plant and then rest it in a haphazard manner, for there is as much skill in resting a plant satisfactorily as there is in producing fine growth. Dendrobiums that are still growing freely must have liberal treatment, and every encouragement should be given to enable them to complete their growths as quickly as possible, no matter which section they belong to. The sooner, within reason, they complete their growths, the more time they have to consolidate them, which is so essential to their flowering satisfactorily.

MILTONIA VEXILLARIA.—Plants of Miltonia vexillaria and its numerous hybrids now comprise a class of Orchids of much beauty and usefulness, and when grown in quantity go a long way towards keeping the house full of flowers for the greater part of the summer months. Those plants which flowered early in the season will now have commenced to grow actively, and those in need of fresh rooting material should receive attention as soon as the new growths attain a few inches in height, and are about to produce new roots. This month and early in September I consider the best time to repot the early summer flowering varieties. Whenever it is considered desirable to increase the stock of any scarce variety, the rhizome may be severed between the bulbs as soon as the flowers have faded, and the pseudobulbs will then quickly produce new growths, and when sufficiently strong may be potted up in small receptacles and treated like the other plants. The late-flowering varieties, such as Leopoldii, superba, and rubella, are best deferred until the spring before attempting any repotting, as if repotted as soon as they pass out of bloom they rarely re-establish themselves before the winter is upon us.

MILTONIAS, being surface rooters, are best grown in shallow receptacles, and will succeed in a compost made up of equal parts of peat, osmunda and AI fibre, sphagnum moss, and clean, sifted, half-decayed oak leaves, all thoroughly mixed together. The plants should be potted moderately firmly, and water should be sparingly applied to them until the new roots have freely entered the new material. A moist position in the Intermediate house, where they can be shaded from the sun, will answer their requirements. Yellow thrip soon puts in an appearance on these plants if the situation is not to their liking.

CATTLEYAS, Læliocattleyas, and their allies should still be potted and

attended to, as previously advised, whenever they get into the desired condition, and are in need of it. Each species, and its hybrids for the most part, has a proper season for this operation, and at the present time Cattleya Warscewiczii (gigas) is, perhaps, the best example of the routine adopted by myself. Having recently gone out of flower, it will be observed that new roots are pushing in quantity from the base of the newly-made pseudobulbs, and any that are in need of new material should have attention before these roots attain any great length. These remarks also apply to any plants which have completed their season's growth without producing flowers. The whole of the plants will be better for being placed in a cooler and drier position, exposed to more air and sunlight, and they should only receive water when they become dry. The newly-potted plants should be treated in precisely the same manner as those that are not in need of it. These plants enjoy a long season of rest, but, under the treatment advised, will be rooting in the new compost right through the winter months, hence the necessity of keeping the pseudobulbs plump and the roots healthy. The idea that extreme drought is a means of making shy bloomers produce flowers is a fallacy.

SOPHRONITIS GRANDIFLORA may now be potted and treated as a miniature Cattleya, except that it is best grown in the Cool house. Sophrocattleyas and other hybrids in which the Sophronitis is one parent, may be treated in precisely the same manner as advised for Cattleyas, but being, as a rule, small growers, should be grown in small receptacles, suspended from the roof of the Intermediate house. Each species and hybrid has its own individuality, and, in order to make the best of them, their little requirements must be closely studied.

EPIPHRONITIS VEITCHII.—The plants at the present time are producing a number of aërial shoots from the flowering growths. Such growths should be taken from the parent plant and potted several together, when they will form nice little specimens. This, like its Sophronitis parent, is best grown in shallow pans, and delights in a fairly moist position near the glass in the Cool house. It succeeds in the same compost as Sophronitis.

EPIDENDRUM PRISMATOCARPUM, with other species of this large genus, succeeds under the same conditions as Cattleya, and the present is a good time to examine and repot any plants that are in need of new rooting material. They should be potted in the same manner as a Cattleya, and a similar compost answers their requirements. They delight in a light position in the Intermediate house, and the usual caution as regards the application of water to the newly-potted plants must be observed.

MAXILLARIAS.—The present season is a good one to undertake the repotting of any species of this interesting genus that requires it. Those

which produce their flowers in a downward direction are best grown in shallow teak-wood baskets, but pots or shallow pans answer the requirements of the others. A clean fibrous compost is suitable, and should be pressed quite firmly round the base of the plants.

CALANTHES in full growth may now have liberal supplies of water, and those which have filled their pots with roots may receive occasional waterings with weak liquid manure, but care must be taken that this is not too strong, or much harm may accrue. These plants now need plenty of heat, light, moisture, and air, and should be elevated close to the glass. The late-flowering section must still be watered with discretion.

COCHLIODA AND ITS HYBRIDS.—Plants of Cochlioda Nœtzliana, with its many hybrids, may be repotted in the same manner, and in a similar compost to that used for Miltonia vexillaria, which I will call the general utility compost, as it answers the requirements of this class of Orchids generally. The different hybrids vary somewhat in their time of growth, and it is obvious that they are not all ready for repotting at one season, therefore they should be taken when they reach the desired condition namely, when the young growths have obtained some few inches in length, and are about to push new roots. These all thrive in a moist position in the Cool house. Oncidioda Cooksoniæ succeeds under the same conditions, but is best grown in an ordinary flower pot upon the stages, as in the case of Oncidium macranthum, the other parent. There is no special difficulty in the cultivation of this and similar plants. Their thin leaves are subject to attacks of thrip, especially if their quarters are a little too dry or hot. Bad attacks of insect pests are attributable, in most cases, to faulty conditions of the atmosphere.

GENERAL REMARKS.—Towards the end of the month steps must be taken towards placing the different plants in their winter quarters. The glass should be throughly cleaned to admit all the light possible during the dark days of winter. The roofs of the different houses should be made absolutely watertight, as drip may mean the loss of a valuable plant. The heating apparatus of the houses, also the boilers, should be examined, and any faults made good, so that when severe weather is upon us they are thoroughly efficient. The best results cannot be expected or attained from faulty materials, and anything within reason should be done to enable those who are entrusted with the charge of valuable plants to pass through the winter months without any undue anxiety. The usual routine of cleaning, potting, &c., will comprise the principal work for the month. It may be impossible, under the present conditions, to maintain everything as one would like, but essentials should not be neglected, so that when we once again reach those good old normal times we may look back with satisfaction and reap the benefit of a duty nobly done.

MISTAKES IN ORCHIDOLOGY.

Concluded from page 154).

A MISTAKE of another kind is seen when an Orchid is described from some erroneous locality, and this in some cases has led to the imposition of an incorrect name, as in the case of *Zygopetalum africanum*, Hook. (*Bot. Mag.*, t. 3812). Sir William Hooker remarked: "I think there can be no question on the propriety of referring this plant to *Zygopetalum*, the first of the genus that has been discovered inhabiting the Old World. It was sent by Dr. Whitfield from Sierra Leone to the Woburn collection, whence Mr. Forbes has obligingly transmitted the present flowering specimen in December, 1839." Shortly afterwards Lindley pointed out that the plant was identical with Odontoglossum bictoniense (*Bot. Reg.*, 1840, t. 66), and he added: "Most assuredly it never came from Sierra Leone. Those who have charge of imported plants ought to be very careful that they make no mistakes regarding so very important a subject." The species was really introduced from Guatemala by Mr. G. Ure Skinner, and was originally described and figured by Bateman under the name of Cyrtochilum bictoniense (*Orch. Mex. & Guat.*, t. 6), from materials grown in the collection of Lord Rolles, Bicton, near Exeter, in April, 1839, a circumstance commemorated in the specific name. It ultimately became Odontoglossum bictoniense, Lindl.

A very curious confusion centres round the pretty little Odontoglossum nævium. When the plant was originally described and figured (*Paxt. Fl. Gard.*, i. p. 87, t. 18), Lindley remarked: "The plant before us was sent to England several years since by Sir R. Schomburgk, and was exhibited by Mr. Loddiges at one of the spring meetings of the Horticultural Society in the present year." (This would make the habitat British Guiana, which was clearly intended, for in the *Folia Orchidacea* he added, "Wild in Demerara, Schomburgk," which is erroneous). He also mentioned a supposed variety which flowered with Messrs. Rollisson in June, 1847, and this was correctly named, as proved by a flower and a water-colour drawing preserved in his own Herbarium. But he also included a specimen collected by Funck & Schlim, at St. Lazaro and La Pena, in the province of Truxillo, Venezuela, said to have a yellow lip spotted with crimson, which, he remarks, "appears to be the same species." This is a mistake, for the plant is a form of what he had already described as Odontoglossum odoratum. In the *Folia Orchidacea* Lindley added a variety majus, based on a plant collected in the province of Pamplona, New Grenada, by Linden. This, again, is different, being O. gloriosum, Linden & Rchb. f.

The confusion just mentioned found an echo in several later works. In 1860 O. nævium was figured in *Pescatorea* (t. 13), where we find the erroneous claim that the species was originally discovered by M. J. Linden in 1842. This, naturally, resulted from Lindley's initial mistake about the Truxillo plant, which is repeated without question, and the remark that the species was afterwards met with by Schlim in the mountains near Santa Martha—probably the source of the plant figured—which might have afforded a real clue, seems to have passed almost unnoticed. An interesting light on the subsequent history of the species is given by Mr. Day, who figured it in April, 1881, from a plant purchased at Mr. Milner's sale, in Edinburgh, in September, 1879 (*Orch. Draw.*, xxix. t. 17). By this time the species had become rare, and Mr. Day remarked: "This is one of the first Orchids I ever bought—say, in 1859 or 1860. Veitch had a good stock of it, which they imported. . . . O. nævium has never been found again, though special expeditions have been made for it, and it has often been announced at sales, but has never proved true." Many years later the species was rediscovered on the Sierra Nevada of Santa Martha, Venezuela, enabling the original confusion to be cleared up.

The Madagascar Phaius tuberculosus has been the subject of a remarkable confusion, and its rectification a few years ago led to a good deal of feeling. The species was originally figured by Thouars in 1822, under the name of Limodorum tuberculosum (*Orch. Iles. Afr.*, t. 31), which afterwards became Phaius tuberculosus, Blume. Over half-a-century later M. Leon Humblot introduced to cultivation a handsome Madagascar Phaius, which flowered in the collection of Sir Trevor Lawrence, and was identified by Reichenbach with the plant of Thouars (*Gard. Chron.*, 1881, i. p. 428). It soon obtained a great reputation in gardens, and, being used for hybridising, yielded several very handsome hybrids. About twenty years later still another batch was brought home by M. G. Warpur, and with it another species having very similar flowers but a totally different habit. The latter soon flowered at Kew, when the discovery was at once made that it was none other than the original Phaius tuberculosus. This left the garden plant, by this time well known and frequently figured as P. tuberculosus, without a name, hence that of P. simulans, Rolfe, was given (*O.R.*, ix. p. 43), in allusion to the close resemblance of its flowers to the original plant, while the climbing habit was totally different, the other being terrestrial and with a short stout rhizome. The correction was not at first accepted, and the new-comer was exhibited at a meeting of the R.H.S. as P. Warpuri, Weathers, while a considerable discussion took place as to the merits of the question (See *O.R.*, ix. pp. 65-67). It was simply a case of mis-identification, and the only course was to rectify the mistake before the original plant became established in gardens under another name.

A few curious mistakes have arisen through the mixture of materials derived from different sources, and one of the most remarkable is seen in the case of Maxillaria spathacea, Lindl. (*Gen. & Sp. Orch.*, p. 131). This was described as a beautiful species, the flowers having the facies and size of Maxillaria Harrisoniæ, but the pollen and anther unknown. The description shows a habit and spathe totally unlike anything in the Maxillaria group, and as a matter of fact it is made up of a plant of a diphyllous Cattleya, probably C. intermedia, and three flowers of Bifrenaria Harrisoniæ. It was based on a mounted sheet in Sir William Hooker's Herbarium, and was said to have been collected in Brazil by Boaz. The marvel is that Lindley, who must have known both the diverse plants well, did not detect the mistake, for the material is ample.

It is not an isolated case, for Lindley also described a Cymbidium limbatum (*l.c.*, p. 145), the source of which is given as Trinidad, Shepherd. Now the genus Cymbidium is unrepresented in the New World, and it was probably for this reason that Grisebach transferred the plant to Govenia as G. limbata (*Fl. Brit. W. Ind.*, p. 628). The change was no improvement, though there was an element of plausibility about it. In fact, it is made up from an inflorescense of a Cymbidium of the aloifolium group—now called C. simulans, Rolfe—and a leaf of Oncidium luridum. The source is probably correct so far as the leaf is concerned, but the inflorescence must have been added by some carelessness in sorting or mounting the specimens.

Many other *bona-fide* mistakes could be pointed out, in fact the list could be greatly prolonged without exhausting the subject. Cases of mis-identification, inadvertent misplacing of labels and tickets, and erroneous records of parentage among hybrids are, of course, numerous, and how many still remain to be detected time alone will tell, but the examples cited will show how great and varied are the opportunities for mistakes in such a vast and intricate subject. They also show the importance of preserving careful records, specimens, and drawings—indeed, without the two latter it is doubtful whether some of the errors would ever have been cleared up. This consideration alone shows the outrageous character of Reichenbach's act in sealing up his Herbarium against his contemporaries and successors for a period of a quarter of a century—now indefinitely prolonged by a disastrous war. When this collection is at length accessible for study a new crop of errors will probably come to light, but on such a matter speculation is useless. The examples cited belong to an earlier period, and are not without interest when viewed from the historical standpoint. And the necessity for correction should be obvious to all, for one cannot write history by compromising with the facts.

R.A.R.

BULBOPHYLLUM ERICSSONII.

BULBOPHYLLUM Ericssonii is surely one of the most striking species of a very large and enormously varied genus, for the inflorescence, which is here represented about five-eights natural size, from a plant which flowered with Messrs. Sander & Sons, St. Albans, bears a rough resemblance to some weird octopus. The flowers are borne in an umbel,

Fig. 23. BULBOPHYLLUM ERICSSONII.

and radiate horizontally from the central axis. Individually they have been compared to those of some Chimæroid Masdevallia, and their colour is light green, with numerous brown blotches, the lip being marked with reddish purple on a white ground. The tails of the lateral sepals, it will

be noticed, curl spirally at the apex, while the erect dorsal sepals are piled up into a sort of cone in the centre of the inflorescence. The nearly horizontal peduncle is not shown, being on the other side of the inflorescence. B. Ericssonii is one of the few Bulbophyllums which have received a First-class Certificate from the R.H.S., this award having been given to a plant exhibited by the Hon. Walter Rothschild, Tring Park, in 1907. The history of the species was given at pages 233, 234 of our fifteenth volume. Both it and the allied and equally remarkable B. virescens have recently flowered well at Kew.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on July 3rd, when there was a good display of choice Orchids, and the awards consisted of two medals, one award of Merit, and one Preliminary Commendation.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, J. Wilson Potter, Stuart H. Low, F. J. Hanbury, Pantia Ralli, T. Armstrong, A. McBean, Arthur Dye, C. H. Curtis, Walter Cobb, W. H. White, F. K. Sander, R. Brooman White, J. Charlesworth, R. A. Rolfe, and C. J. Lucas.

AWARD OF MERIT.

ODONTOGLOSSUM QUEEN ALEXANDRA VAR. MEMORIA LIONEL CRAWSHAY (Harryanum × triumphans Lionel Crawshay).—A large and very handsome form, having broad, chocolate-brown sepals and petals, margined and tipped with yellow, and a very broad lip, violet-purple at the base and white in front of the yellow crest. Exhibited by de Barri Crawshay, Esq.

PRELIMINARY COMMENDATION.

ODONTIODA MEMORIA LIONEL CRAWSHAY (Odm. Urania × Oda. Charlesworthii).—An interesting novelty, bearing a single large flower, of good shape and substance, the sepals and petals of a nearly uniform light brownish orange, and the lip shading off to pale yellow in front, and with a deep yellow crest. Exhibited by de Barri Crawshay, Esq.

GENERAL EXHIBITS.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontoglossum Cleopatra memoria Lionel Crawshay (Carmania × Vuylstekei), a fine thing, bearing a spike of six well-shaped flowers, in which the characters of O. Harryanum preponderate, the sepals and petals being sepia brown with yellow margins, and the lip violet-purple behind and white in front of the yellow crest.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent a very finely-developed plant of the remarkable New Guinea Bulbophyllum Balfourianum, bearing four of its large, fleshy, greyish green leaves, and five large flowers, copiously blotched and marbled with chocolate-brown on a cream-yellow ground.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group of Orchids, to which a Silver-gilt Flora Medal was awarded. It included a brilliant form of Miltonia Hyeana, the handsome M. J. Gurney Fowler, and others, Brassavola Digbyana with three flowers, a good Cattleya Gaskelliana alba, a fine example of Odontonia Lairesseæ, Odontioda heatonensis and several of the scarlet forms, with Læliocattleyas and a few promising seedling Odontoglossums.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a group of finely-grown specimens, including the beautiful blush-pink Cattleya Warscewiczii Mrs. E. Ashworth with six flowers, two fine forms of C. Gaskelliana with nine flowers each, a light form of C. Mossiæ, a specimen Miltonia Bleuana with ten strong spikes, the handsome M. vexillaria var. Lyoth, a fine plant of Masdevallia Schlimii with fifteen spikes, M. Chimæra, some good Læliocattleyas, Odontoglossums, and others.

Messrs. Sander & Sons, St. Albans, staged a small group, including Odontonia Aphrodite (M. Warscewiczii × Odm. Magali-Sander), well blotched with red-purple on a white ground, a good example of Miltonia Isabel-Sander (Hyeana × Roezlii), white with a dark maroon base to the lip, two good examples of Phalænopsis amabilis, Angræcum falcatum, Brassavola Digbyana, the rare Megaclinum Clarkei, Luisia Psyche, Læliocattleya Martinetii vinifera, and a few other interesting things.

At the meeting held on July 17th there were again two fine medal groups, but only two plants were entered to go before the Committee, to one of which a Preliminary Commendation was given.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), W. Bolton, E. R. Ashton, J. Wilson Potter, R. A. Rolfe, F. J. Hanbury, Arthur Dye, F. R. Sander, Pantia Ralli, S. W. Flory, R. Brooman White, Walter Cobb, T. Armstrong, J. Charlesworth, C. H. Curtis, and Sir Harry J. Veitch.

PRELIMINARY COMMENDATION.

ODONTOGLOSSUM LILIAN (Dora × Empress of India).—A charming thing, bearing its first flower, which has the general shape of an enlarged O. Pescatorei, all the segments being very broad and rounded, and the lip exceptionally so, while the colour is clear white, with a zone of light violet blotches on the segments. Exhibited by Messrs. Charlesworth & Co.

GENERAL EXHIBITS.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, to which a Silver Flora Medal was given. It contained the handsome Miltonia vexillaria Frank Reader, M. Charlesworthii, Cypripedium Alma Gevaert, the graceful C. Vipanii, Anguloa Cliftonii, Bulbophyllum Dearei, a fine Cattleya Warscewiczii, Odontioda Henryi, Bradshawiæ, heatonensis, Penelope, and Cereus var. Figaro (Oda. Charlesworthii × Odm. excellens), having clear yellow flowers blotched with chestnut brown, and the lip with a light yellow margin (remarkably different from the original light scarlet form), a very fine Odontoglossum Amethyst Glebelands var. O. Pescatorei album, with a fine panicle of flowers, O. eximium and var. xanthotes, O. Armstrongiæ, blotched with violet-purple on a white ground, and several other good things.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a brilliant group, including two fine Cattleya Hardyana alba, C. Warscewiczii majestica, a noble form with four flowers, the blush-pink variety Mrs. E. Ashworth, C. Gaskellian alba, the pretty C. calummata, two examples of C. Hesta, Sophrocatlælia Laconia, a very richly-coloured Læliocattleya Momus, the rare Broughtonia sanguinea with two racemes, half-a-dozen well-grown Miltonia Charlesworthii, Bulbophyllum Lobbii with seven flowers, Oncidioda Charlesworthii with four large panicles, Odontioda Zenobia, Brewii, and others, Odontoglossum eximium xanthotes, and several good blotched hybrids.

A third meeting was held on July 31st, when the exhibits were again moderate, and the awards consisted of two Awards of Merit and two medals.

Orchid Committee present: Sir Jeremiah Colman (in the chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, W. Bolton, S. W. Flory, F. K. Sander, Pantia Ralli, T. Armstrong, Gurney Wilson, J. Wilson Potter, and C. J. Lucas.

AWARDS OF MERIT.

CATTLEYA PRINCESS ROYAL (Fabia × Hardyana).—A richly-coloured hybrid, most like the latter in general character, and having deep rose-purple sepals and petals, the latter with some paler mottling, and a ruby-red lip, margined with lilac, and lined with golden yellow in the centre. Exhibited by Messrs. Charlesworth & Co.

CATTLEYA ROSITA ORCHIDHURST VAR. (Prince John × iridescens).—A very beautiful hybrid, the flower being of excellent shape, and the sepals and petals salmon pink, tinged with yellow, while the lip is chrome yellow, with a rounded, deep magenta front lobe. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

J. Ansaldo, Esq., Rosebank, Mumbles, sent Sophrocatlælia Corona Ansaldo's var. (Lc. rubens × Sc. Dorila), in which the Lælia pumila influence coming in through both parents is very marked. The habit is dwarf, and the broad sepals and petals rosy mauve, with a shade of orange, and the lip rosy purple with a yellow disc.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed a flower of Cattleya illustris var. Savoyard (iridescens × Acis), pale canary yellow in colour, with the front lobe of the lip light purple.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a choice group, including Odontioda Una (Odm. Hallii × Oda. Charlesworthii), blotched with reddish purple on a cream-white ground, and with a strongly-toothed yellow crest, Miltonia Rev. W. Wilks, with large rosy flowers, Cattleya illustris Orchidhurst var., clear yellow with rosy veining on the lip, Læliocattleya Pronax (elegans × George Woodhams), a richly-coloured form, and others.

Messrs. Charlesworth & Co., Haywards Heath, also obtained a Silver Flora Medal for a fine group, including Læliocattleya Marina (Lc. St.-Gothard × C. Hardyana), a striking thing, having deep rose sepals and petals, and a broad ruby purple lip, lined with deep yellow in the throat, Lc. Agnes (C. Schillerianum × Lc. callistoglossa), most like the Cattleya in general character, Lc. Appam, yellow with the front of the lip ruby purple, a fine specimen of Miltonia vexillaria rubella with numerous spikes, some good forms of Odontoglossum armainvillierense, O. eximium, O. crispum xanthotes, and other good things.

GERMINATING CATTLEYA SEEDS.

A JAPANESE correspondent who is anxious to raise some seedling Cattleyas writes: I have been trying to hybridise Cattleyas for the last two years without result, and someone has told me that in England the germinating material can be bought—material which has already been treated with the Cattleya Fungus, and on which the seeds can be sown, and that without this it is impossible to raise seedlings of Cattleya. Your views and assistance in the matter will be much appreciated.

This is probably an echo of the experiments carried out by the late M. Noel Bernard, and his conclusions as to the necessary co-operation of the Orchid fungus, but we do not know of anyone keeping the germinating medium on sale, hence the assistance of any reader who has experience of the matter will be much appreciated. The question has been discussed in these pages on several occasions, and some years ago M. Bernard sent us an

article on the subject, accompanied by a photograph, which was published under the heading Fungus Co-operation in Orchid Roots (*O.R.*, xiv. pp. 201-203, with fig.). The subjects were Odontoglossum and Phalænopsis, but the same principles apply to Cattleya, except that a different fungus is used. M. Bernard remarked, "the fungi which succeed well in the case of Cattleya, Cypripedium, &c., do not work at all in the case of Odontoglossum." As regards the latter, the figure showed two tubes, one in which Odontoglossum seeds had been sown for four months on the surface of nuitritive jelly, but which had simply swelled and turned green without making further progress, and it is said that the process could be continued for six or seven months in the absence of the fungus with no better results. In a similar culture to which the Odontoglossum fungus had been added the seeds were germinating in a regular manner in 2½ months, the fungus itself was obtained by suitable cultural methods from the roots of the Odontoglossum, and M. Bernard was of the opinion that, under appropriate methods, Odontoglossum seeds could be germinated as readily as those of Cattleya.

M. Bernard's experiments seem conclusive as to the necessity of the co-operating fungus, but myriads of seedlings were in existence before the discovery was made, and as the said fungus is present in the roots of the parents, the whole subject resolves itself into providing suitable methods for their propagation. It may be said that wherever Orchids germinate successfully, either in a wild state or in our houses at home, the fungi must be present all the time, and this would explain why in so many cases the compost of a healthy growing plant, or, better still, of a batch of vigorous young seedlings, proves the most suitable seed bed. It would appear, however, that the fungi, if present, are not invariably active, for seeds may be sown on the pots of several plants of the same species, but will only germinate on part of them, and for no apparent reason. But there are many cases of successful germination quite apart from any existing plant, and the question arises as to the precise way in which the fungus was transferred to the new site. The fungus can exist apart from the Orchid, at all events for a time, but the symbiotic relations between the two would suggest that the separation is of a temporary nature. In any case they thrive under the same conditions, and success with one should involve success with both, if both are present. And here comes the difficulty that so little is known about the fungi. Two or three different kinds are said to have been isolated, but they remain in the mycelial stage, and without the fruit it is not even known to which genus they belong.

The subject is still involved in uncertainty, and, as Mr. J. M. Black once suggested (*O.R.*, xiv. p. 117), some of our Orchid-growing scientists might take it up and solve it for us in a practical way, for it ought to be as

easy to cultivate the fungus, so that a seed-pan could be inoculated as occasion required, as for bacteriologists to make their cultures from the nodules of leguminous plants. In the meantime the most practical suggestion is to sow the seeds on the compost of healthy vigorous plants of the parents, and to keep the surface constantly moist and maintain healthy surroundings generally. It is still the only practical method in the case of Cypripedium and Odontoglossum, but the Cattleya group is now generally sown on separate seed pans, consisting of canvas stretched over a ball of sphagnum moss, surrounded by a little fine compost to fill up the space between the canvas and the rim of the pan. The pan is then covered with a piece of glass, or put in a close frame in the house, for better control of the atmospheric conditions. Here they germinate freely in most cases, if the seed is good, and failure is mostly the result of unsuitable conditions. We suggest that it is to the latter cause, rather than to the absence of the necessary fungi, that our correspondent's failure may be due. The absence of fungi may be a cause of failure—we do not know if anyone has tried to germinate Cattleyas in a suitable atmosphere where no Orchids whatever are grown—but their presence would not compensate for conditions that are faulty in other respects.

If our correspondent is able to grow Cattleyas reasonably well we see no reason why his seeds should fail to germinate, if proper care is taken, but it should increase the chances of success if a few small healthy seedlings could be obtained from some other collection, on the compost of which the seeds could be sown. Germinating seedlings are, of course, far more delicate than established plants, hence the importance of maintaining equable climatic conditions. Other beginners have experienced similar difficulties, and we hope that further experiments may be crowned with success.

ORCHIDS IN SEASON.

A BEAUTIFUL form of Cattleya Iris (bicolor × Dowiana aurea) is sent from the collection of T. Wilcox, Esq., Walsall. It has clear, deep yellow sepals and petals of good shape, and the lip, which closely resembles that of C. bicolor in shape, is clear purple throughout. It is a seedling flowering for the first time, and should develop into a good thing when the plant becomes strong.

A flower of a handsome Oncidium is sent from the collection of Philip Smith, Esq., Haddon House, Ashton-on-Mersey, by Mr. E. W. Thompson, who remarks that it appeared among imported plants, and is suspected to be of a hybrid origin. It is O. Mantinii,, a natural hybrid between O.

Forbesii and O. Marshallianum, which originally appeared in the establishment of M. Truffaut, at Marseilles, whence it passed into the collection of M. G. Mantin, Olivet, France. It is believed to have appeared in a Brazilian importation of M. Binot. The flower is deep yellow, with a number of light brown markings. As in the case of many other natural hybrids, it varies somewhat in colour and markings. Its history and a figure are given at page 329 of our nineteenth volume.

A DIMEROUS CYPRIPEDIUM.—A curiously malformed flower of a hybrid of Cypripedium insigne is sent from the collection of R. Windsor Rickards, Esq., Usk Priory, Monmouthshire. It consists of two short, broadly ovate sepals, and two opposite lips, these occupying the position of the petals, which they clearly replace. The usual lip is absent, and the column is straight, and without a staminode, though the stigma and anthers are present. The prevailing colour is light green, without any of the characteristic markings of the dorsal sepal. It would appear that the median petal is suppressed, while the staminodial influence that transforms it into a lip in the normal flower has wandered to the lateral petals, transforming them into lips. Something of the kind must happen when similar dimerous flowers appear in the genus, and we have seen previous examples. It would be interesting to know whether the peculiarity proves constant.—R.A.R.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during August, on the 14th and 20th, when the Orchid Committee will meet at 11.45 a.m. The following meeting is fixed for September 11th.

The Manchester & North of England Orchid Society has suspended its meetings for the holiday season, and the next meeting will be held at the Coal Exchange, Manchester, on September 6th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

ANSWERS TO CORRESPONDENTS.

T.W.—A good form of Cattleya Iris, of which a note appears on the preceding page.

C.J.P.—Many thanks. To be recorded later.

R.W.R., and several others.—The delay has been quite unavoidable, but we hope only temporary. Some notes are held over, and one report did not reach us until the matter was made up. It will appear in our next issue.

H.T.C.—Received with thanks. Next month.

The Orchid Review

VOL. XXV. SEPTEMBER, 1917. No. 297.

NEW ORCHIDS.

ANOTHER Decade of New Orchids appears in the recent issue of the *Kew Bulletin*, six of the species being in cultivation, as follows :—

PLEUROTHALLIS (Apodæ cæspitosæ) COSTARICENSIS, Rolfe.—A dwarf species, sent from Costa Rica by Mr. C. H. Lankester, and flowered in the Kew collection in May, 1916. The flowers are borne in an elongated raceme, and are light greenish yellow, with rather darker nerves and lip.—*Kew Bull.*, 1917, p. 82.

CIRRHOPETALUM LONGIDENS, Rolfe.—Flowered at Kew in July, 1916, where it has been grown for a considerable time as a small plant, and its origin cannot be traced. It is an ally of C. picturatum, Lodd., and is remarkable for the length and shape of the teeth of the column. The flowers are yellow, with red-brown markings on the petals, dorsal sepal, and base of the lateral sepals.—*l.c.*, p. 12.

ERIA (Cylindrolobus) ALBOLUTEA, Rolfe.—A Philippine species, which flowered in the Royal Botanic Gardens, Glasnevin, in August, 1916. It is an ally of E. brachystachys, Rchb. f., and has pure white flowers, with the petaloid bracts light yellow.—*l.c.*, p. 83.

EPIDENDRUM (Amphiglottium), TRICARINATUM, Rolfe.—One of M. Louis Forget's Peruvian discoveries, introduced by Messrs. Sander & Sons, St. Albans, and flowered with Sir Frederick W. Moore at the Royal Botanic Gardens, Glasnevin, in June, 1916. It is allied to E. evectum, Hook. f. (*Bot. Mag.*, t. 5902), but is readily distinguished by the three whitish keels on the lip. The flowers are bright purple.—*l.c.*, p. 83.

MAXILLARIA SHEPHEARDII, Rolfe.—A Colombian species, collected at Rio Condoto, in the Choco district, by Dr. S. Shepheard. It was acquired for Kew, in 1914, from Mrs. Shepheard, Abbotts Hall, Aylsham, and flowered in the collection in July, 1916. The flowers are produced in profusion on rather short scapes, and the sepals are deep yellow, suffused with brownish red towards the apex, the petals yellowish white, and the lip yellow, striped with light red on the disc and side lobes, with the apex of the crest orange red.—*l.c.*, p. 86.

DICHÆA CILIOLATA, Rolfe.—A Costa Rican species, sent to Kew by Mr.

C. H. Lankester, and flowered in the collection in July, 1915. It is allied to D. hystricina, Rchb. f., but has much broader and shorter leaves. The flowers are pale buff, with red-purple spots and bars, the lip white with purple spots and a purple suffusion on the side lobes, and the column pale buff, margined with dull purple, and the rostellum violet—*l.c.*, p. 86.

The other four species are South African, namely, Eulophia triloba, elegantula, obcordata, and durbanensis, Rolfe, and are described from dried specimens.

NEW HYBRIDS.

I HAVE to report the following Orchid hybrids raised and flowered in this collection, and which I name as follows :—

LÆLIOCATTLEYA BREBURNE (Lc. Geo. Woodhams × Thyone).

ODONTIODA BACHEHAM (Oda. rosefieldiensis × Odm. Thais).

ODONTIODA BOLTONE (Odm. Aireworth × Oda. Charlesworthii).

ODONTIODA BORNE (Oda. Bradshawiæ × Odm. Louise).

ODONTOGLOSSUM BADELSMERE (Odm. Jasper × hybrid unnamed, one of Vuylsteke's).

ODONTOGLOSSUM BEREWIC (Odm. crispum Floryi × Her Majesty).

ODONTOGLOSSUM BOROWART (Odm. Ianthe × Kilburneanum).

C. J. PHILLIPS.

The Glebe, Sevenoaks.

An interesting and pretty hybrid, presumably of artificial origin, has been sent from the collection of W. Waters Butler, Esq., Southfield, Edgbaston, unfortunately without any clue to its origin. One parent, however, was clearly a Miltonia, from the shape and colour of the lip; the other, from the dark, somewhat elongated sepals, petals, and column, may have been an Odontoglossum. There is a suggestion of Miltonia cuneata about the shape of the lip, which is obovate, with a cuneate base, and a pair of small auricles above the base, but the colour is entirely purple, with a yellow crest. The sepals and petals are broadly lanceolate, and of a darker purple, with brown underneath, which comes out stronger in drying, while the column is rather elongated, and with rather narrow, nearly entire wings. We hope that an effort will be made to trace the origin of the plant, so that the parentage may be cleared up, and we may add that this note was written without an opportunity of comparing the specimen. It is particularly difficult to trace the origin of certain hybrids when neither the parentage nor the origin are known, and such cases, unfortunately, are becoming exceedingly numerous.

DORITIS PULCHERRIMA.

IF it were to be remarked that Lindley's long-lost Doritis pulcherrima is now flowering freely in the Kew collection, the statement would probably cause some surprise, but it is none the less a plain statement of fact, and the history of the plant and its recovery will therefore be read with interest.

The genus was established by Lindley as long ago as 1833 (*Gen. & Sp. Orch.*, p. 178), being based on a dried specimen collected by Finlayson near Turon (or Tourane) Bay, Cochin China, from the Herbarium of the East India Co. (*Wall. Cat.*, n. 7348). The specimen in Lindley's Herbarium consists of a leaf and the base of a flowerless scape, with analytical sketches of the floral details (the flower itself appears not to have been kept). The Kew specimen is still more fragmentary, being without a leaf, but there is part of the apex of the inflorescence with a few bracts. Both Reichenbach and Bentham, when adding other species to the genus, have commented upon the difficulty of identifying the original plant, and the species has remained doubtful down to the present.

Since then, however, the Wallichian Herbarium has come to Kew, and it occurred to us to look up the material preserved there. We found two leaves, portions of branched and an unbranched inflorescence, and a single dried flower. It is carefully labelled with Lindley's name and the Catalogue number, and there is also an original ticket of Finlayson, inscribed "Epidendrum, Turon Bay, n. 521." The specimen was clearly Phalænopsis Esmeralda, Rchb. f., and with this clue we turned to the Kew collection of drawings. Here was a fine painting, with four leaves, and an unbranched inflorescence with 17 flowers and buds, labelled "Orchidea, Finlayson, n. 521," the actual number of Finlayson's original ticket. In the absence of the name and of the original ticket there was absolutely nothing to show that it was an original painting of Doritis pulcherrima, and its identity has remained unsuspected until now. As a matter of fact, the painting was found years ago by the writer, and labelled "Phalænopsis Esmeralda, Rchb. f.—R.A.R."

PHALÆNOPSIS ESMERALDA, Rchb. f., was described in 1874 (*Gard. Chron.*, 1874, ii. p. 582), as a lovely gem, bearing six spikes of amethyst-coloured blossoms, showing from 15 to 20 flowers. Information as to the collector and native country were deferred. It afterwards appeared (*Orchidophile.* i. p. 9) that it was introduced from Cochin China by M. Godefroy Lebeuf, who found it in two localities in the island of Phuquoc, in the Gulf of Siam, growing on isolated rocks in the midst of a small thicket of conifers—never on trees—and that during the dry season, when all vegetation on the rocks

disappears, the plants lose their leaves. Reichenbach subsequently made a distinct section of Phalænopsis, called Esmeralda, for the plant on account of the presence of two linear appendages on the stalk of the lip. He also described three additional species, namely, P. antennifera (*Gard. Chron.*, 1879, i. p. 398), sent by Mr. Stuart Low; P. Regnieriana (*l.c.*, 1887, ii. p. 746), introduced from Cochin China by M. Regnier, and P. Buyssoniana (*l.c.*, 1888, ii. p. 295), also from M. A. Regnier. These, however, are now regarded as only variations of P. Esmeralda, which varies considerably in colour, and somewhat in size. The species has also been recorded from Cambodia, Burma, the Langkawi Islands, and from Setul and Patani, in the Malay Peninsula.

The section Esmeralda has always been anomalous in Phalænopsis, on account of the long, slender unguis of the lip, with its pair of linear appendages, and as there are other differences of structure, and the habit of the plant is distinct, it will be necessary to recognise Lindley's original name. Doritis pulcherrima is a very free-flowering and attractive plant, throwing up numerous erect, sometimes branched spikes in the summer and autumn, the flowers varying from purple to lilac, and occasionally nearly white, with a rather darker lip. About a dozen pans of it, each containing several plants, are now making a good display at Kew, and showing much variation in size and colour.

This clears up Lindley's original genus Doritis, and we now come to the species which have been subsequently added. In 1860 Reichenbach transferred Lindley's Dendrobium bifalce (*Benth. Bot. Sulph.*, p. 180, t. 58), a native of New Guinea, to Doritis, under the name of D. bifalcis (*Hamb. Gartenz.*, xvi. p. 116), but this was clearly a mistake, for the somewhat imperfect specimen agrees with what was afterwards described as Dendrobium chloropterum (Rchb. f. & S. Moore in *Journ. of Bot.*, 1878, p. 137, t. 196), which thus becomes a synonym of D. bifalce. Bentham afterwards suggested that the New Guinea Carteretia paniculata, A. Rich. (*Sert. Astrolab.*, p. 10, t. 4), was a Doritis, again a mistake, for the plant clearly belongs to the Saccolabium group. A few other species which have been added to Doritis are also seen to be out of place now that the original species has been cleared up, being quite distinct in structure. For these no existing name is available, and we propose that of Kingiella, in memory of the work of the late Sir George King with Indian Orchids. The name Kingia, in honour of the Australian voyageur, Captain King, is already appropriated for a remarkable tree-like rush from S.W. Australia.

KINGIELLA is characterised by the union of the lateral sepals with the base of the lip, forming a spur-like mentum, from which the lobes are borne directly, without an unguis furnished with linear appendages. The following are the species :—

K. TÆNIALIS. Aërides tæniale, *Lindl. Gen. & Sp. Orch.*, p. 239. A. carnosum, *Griff. Notul.*, iii. p. 365; et *Ic. Pl. Asiat.*, t. 338a. Doritis tænialis, Benth. ex *Hook. f. Fl. Brit. Ind.*, vi. p. 31; *King & Pantl., Orch. Sikkim*, p. 199, t. 266. D. Braceana, *Hook. f. Fl. Brit. Ind.*, vi. p. 196, & *Ann. Bot. Gard. Calc.*, v. p. 40, t. 60.—Native of North India, from Kumaon, Bhotan and Sikkim to Khasia and Burma.

K. DECUMBENS. Aërides decumbens, *Griff. Notul.*, iii. p. 365, & *Ic. Pl. Asiat.*, t. 320, fig. 1. Phalænopsis Wightii, Rchb. f. in *Bot. Zeit.*, 1862, p. 214. Aërides latifolium, *Thw. Enum. Pl. Ceyl.*, p. 429. Doritis Wightii, Benth. ex *Hook. f. fl. Brit. Ind.*, vi. p. 32; *King & Pantl. Orch. Sikkim*, p. 198, t. 265. Phalænopsis alboviolacea, Ridl. in *Trans. Linn. Soc.*, ser. 2, iii. p. 373.—Widely diffused in India, from Sikkim and Bhotan to Burma, also in East India, Ceylon, the Malay Peninsula and the Chinese Island of Hainan.

K. HEBE. Phalænopsis Hebe, Rchb. f. in *Hamb. Gartenz.*, 1852, p 35, & *Xen. Orch.*, ii. p. 146, t. 156, fig. 2; *J. J. Smith, Orch. Jav.*, p. 550, fig. 417. P. bella, Teijsm. & Binn. in *Nat. Tijdschr. Nederl. Izd.*, xxiv. p. 321. P. amethystina, Rchb. f. in *Gard. Chron.*, 1865, p. 602; 1870, p. 1731, fig. 299. Doritis Hebe, Schlechter in *Fedde Rep. Nov. Sp.*, Beih. p. 968.—Native of Java and Sumatra.

K. PHILIPPINENSIS. Doritis philippinensis, *Ames Orchid.*, p. 235, with fig.—Native of the Philippine Islands.

K. STEFFENSII. Doritis Steffensii, Schlechter in *Fedde Rep. Nov. Sp.*, x. p. 194.—Native of Celebes.

Phalænopsis Stobartiana, Rchb. f. in *Gard. Chron.*, 1877, ii. p. 392, may possibly belong to this genus, but the description is quite inadequate, and the habitat is unrecorded.

R. A. ROLFE.

CYPRIPEDIUM SEDENII ABNORMAL.—A curious abnormal state of Cypripedium Sedenii has appeared in the Kew collection. It occupies the apex of a side branch of the inflorescence, and the ovary is confluent with the axis above the third bract, the axis thus being much dilated and flattened. The two petals are modified into imperfect lips, both as regards colour and markings, and inside these are two additional, much smaller lips, while the staminode and stigma are abnormal in shape. At the apex of the fasciated floral axis are two additional buds, the upper in the axil of a short bract and the lower without a bract, and both appear to be developing normally in other respects. C. Sedenii is a hybrid between C. Schlimii and C. longifolium, and it has established a reputation for producing abnormal flowers, a good many of which have been described, but we do not remember one with this particular character, which is doubtless due to one of the flowers remaining confluent with the axis.

CORYANTHES FEILDINGII.

A FLOWER of a fine species of the remarkable genus Coryanthes, preserved in formalin, has been sent to Kew for determination by Mr. Pratt, entomologist and traveller, who remarks that it was collected near Tabaconas, about 78° west longitude, on the borders of Peru and Ecuador. The identity of the species is at present uncertain, but it belongs to the group of C. macrantha and C. Fieldingii. Mr. Pratt describes the colour of the flower as follows: "Bucket grass green; petals darker grass green, with chocolate spots." Coryanthes Feildingii, Lindl., is a very large species that was described and figured nearly seventy years ago (*Journ. Hort. Soc.*, iii. pp. 15-18, with two figures), but which, we believe, has been lost sight of ever since. Its country was unknown, but the flower is preserved in the Lindley Herbarium. The figures represent the front and back views of the flower. The following is Lindley's account of this remarkable plant:—

"In August, 1847, Col. Feilding sent me for examination a flower of a Coryanth. which is so remarkable as to deserve a notice at some length. The plant was purchased of Mr. Atkins, of Northampton, in 1842, its origin being unknown. It flowered at Street Aston in 1844; in 1845 it was again showing for flower, but missed in consequence of its removal to London; in 1847 in finally produced the extraordinary blossoms which are the subject of the annexed figures.

"As usual in this genus the flowers are pendulous and inverted, so that the apparatus of the column hangs downwards instead of being erect. The general colour of the parts is pale brownish yellow, a little mottled, and stained with cinnamon in an irregular manner. When closed, the flower is about five inches long and three wide. As it unfolds, the sepals and petals, which are membranous and bear no small resemblance to bat's wings, turn back, seem to fold up, and finally hang drooping at the back of the lip and column, in which organs, as is well known, the singularity of the genus resides.

"The lip is borne by a thick horizontal arm an inch and a half long, which proceeds from the top of the flower-stalk, and consequently from the lower end of the column. Right and left of its base are placed two softish fleshy pale ear-like lobes, which are organs of secretion, a sweet fluid continually dripping from them as long as the flower is in vigour. At the other end this horizontal arm expands into a convex cap or hood, hairy in front but bald on the crown; a little compressed from the back and two inches across in its principal diameter. From the cap hangs down a large fleshy goblet, smooth at the edges, flattened at the end, two inches deep

and as many wide, and connected with the cap by a hollowed fleshy stalk, which is strongly marked by various transverse fleshy folds, warts, and ridges; into this goblet drips the honey, secreted by two ears at the base of the horizontal arm which carries the lip. On the side next the column the goblet is opened, and near the bottom of this opening it is furnished with three fleshy sharp-pointed lobes, of which the lateral curve downwards and the middle one stands erect, rising just high enough to come in contact with the head of the column, which grows downwards so far as to almost touch it.

"The column is a large fleshy club-shaped body two inches and a half long, and throwing back its head till its bosom becomes so round and large as to be comparable to the breast of a "puffer" pigeon. The head of the column divides into two short flat fleshy curved arms, between which the anther is seated.

"This extraordinary species is perfectly distinct from Coryanthes macrantha, not only in size, bnt in the form of the cap, its hairiness, the truncated termination downwards of the goblet, and the plaits or tubercles that occur on the stalk of the latter. Its flower is the largest yet known among Orchids."

As regards the so-called "honey," we believe the description is inaccurate, for in other species the liquid secreted by the glands is a watery, tasteless fluid, which serves a quite different purpose in the economy of fertilisation. The idea then seems to have been that the liquid exuded by the glands served the purpose of attracting insects, but the details of fertilisation in C. macrantha have since been fully described by Crueger and Rodway, and the essential details are identical in all the species, of which several striking ones have since been discovered. These details can be graphically explained by the help of the accompanying figures.

C. MACRANTHA, as seen in its native home, is figured at p. 41 of our third volume, where it was pointed out that the mass of interlacing roots is almost invariably inhabited by a colony of carnivorous ants, which form an efficient protection against the attacks of cockroaches and other pests. Having provided a guard against crawling vermin (we summarise Rodway's remarks), the Coryanthes proceeds to develop a most wonderful flower, in which every part is obviously formed to attract a particular insect, a beautiful metallic green bee, known as Euglossa aurata. The pendulous flowers are generally borne in pairs, and as soon as they expand the liquid secreted by the two glands drips into the bucket beneath. The flowers exhale a strong perfume, very attractive to the bees, which immediately swarm round in great numbers. Flying towards the flower, as a moth to a candle, the bee falls into the liquid which covers the bottom of the bucket,

and wetting its wings is unable to use them. It is equally unable to crawl up the slippery sides, and thus it has to find an exit by means of a narrow opening between the lobes of the lip and the apex of the column, in doing which it carries off the pollinia on its back, to be in turn left upon the stigma of the next flower visited.

Rodway subsequently had another good opportunity of observing the wonderful contrivances by which the flowers are fertilised. At seven o'clock the flowers were a trifle loose; at 8.30 the bees were seen round the fully-opened flowers, and an hour later every pollen mass must have been carried away. At the latter period from six to eight bees were continually

Fig. 24. CORYANTHES MACULATA VAR. VITRINA.

hovering round, crawling under the dome-like appendage above the cup, and dropping into the trap below. Their green and gold bodies flashed in the light as they buzzed round, and on one of them a pair of pollen masses showed conspicuously against the metallic green back.

Crueger pointed out that the attraction is some cellular tissue situated under the hood of the flower that the bees gnaw off, and he has seen them disputing with each other for a place on the lip and falling into the bucket beneath. Undeterred by its involuntary bath, the bee returns again to the feast, to be again precipated into the bucket. And he adds: "Sometimes there are so many of these humble bees assembled that there is a continual procession of them through the passage specified." It would be interesting to secure a photograph showing the bees at work, but a friend in Trinidad

who made the attempt reported that the plate was a failure. We hope that he will try again.

A few words must now be added as to the two plants here figured:—

C. MACULATA VAR. VITRINA (fig. 24) is a curious unspotted variety of a Central American species, that appeared with Messrs. Sander & Sons, in 1894, and subsequently passed into the collection of Dr. Hodgkinson, The Grange, Wilmslow, from whom the annexed photograph was received. The sepals and petals are light greenish yellow, entirely without spots, and the lip a little paler, the name being given in allusion to the glassy appearance. The odour was described as that of a ripe pear. The shape of the hood, the bucket, and the pair of glands at the base of the column are well shown, and at the ends of the latter may be seen the glistening

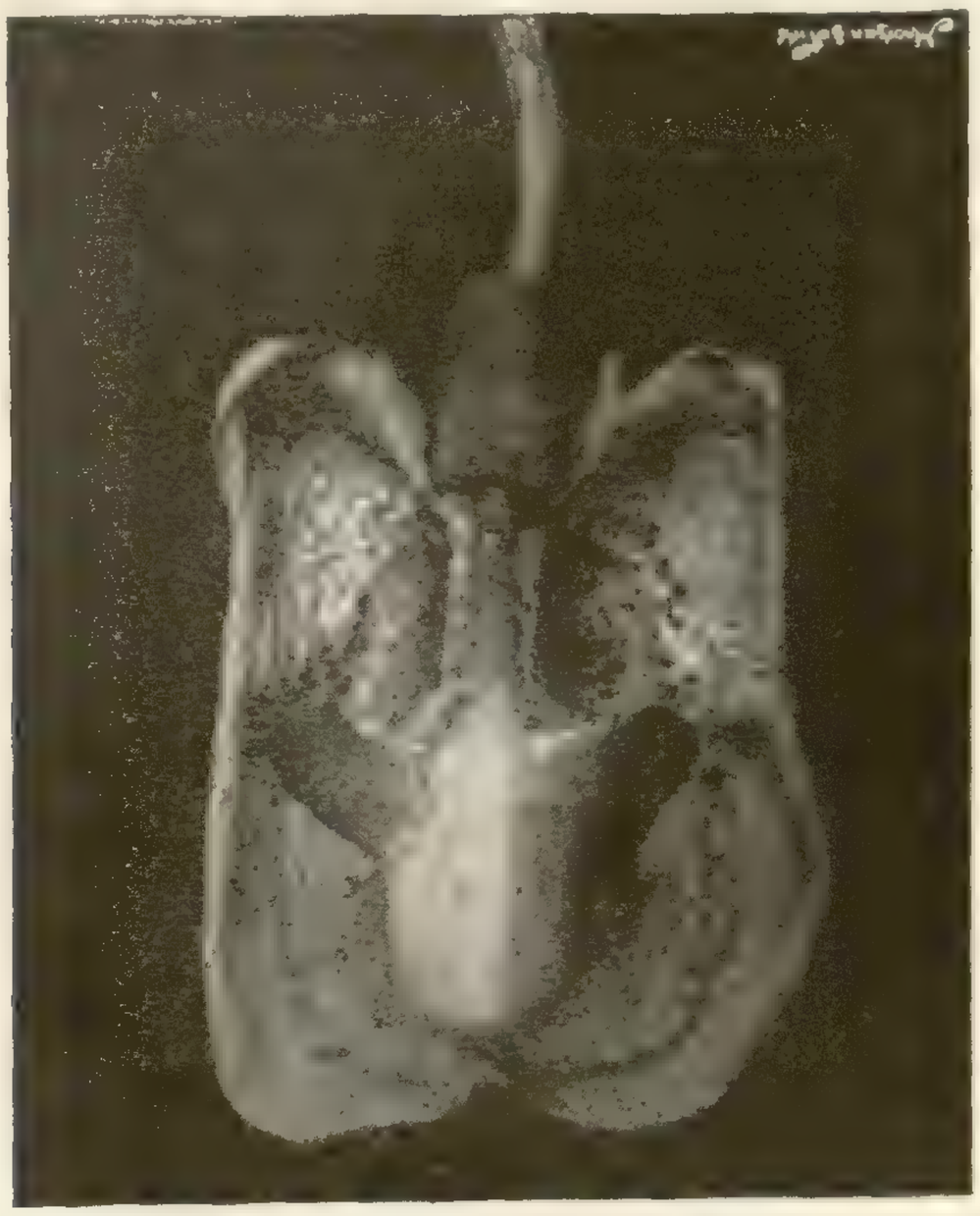

Fig. 25. CORYANTHES MACROCORYS.

drop of liquid just about to fall. It is a graphic illustration of a very remarkable Orchid.

C. MACROCORYS (fig. 25) is a Peruvian species that was introduced by Messrs. Linden, Brussels, with whom it flowered in March, 1892, when it was described and figured (Rolfe, in *Lindenia*, viii. t. 342). Plants were afterwards introduced by Messrs. Sander, and from a flower of the latter, photographed by the writer, about half-natured size, the annexed figure was prepared. It is very distinct in shape, and the concave lateral sepals resemble some expanded bivalve shell, with the texture and colour almost of an Aristolochia. The bucket is much dilated above, and the hood unusually long and narrow, while the pair of horns are suberect and very much elongated. The colour may be described as light apple green, covered with light brown blotches on the lateral sepals and the inside of

the lip, while the hood is almost suffused with a darker shade of purple brown. The species is rare, and it is doubtful if it is in cultivation at the present time.—R.A.R.

ORCHIDS IN SEASON.

SEVERAL beautiful flowers are sent from the collection of H. Goodson, Esq., Fairlawn, Putney, by Mr. G. E. Day. The gem of the series is Cattleya Hardyana var. Herbert Goodson, a flower of excellent shape, and having pure white sepals and petals, with a broad lip of intense purple-crimson, beautifully veined with golden yellow on the disc, and with a pair of very large yellow blotches on either side of the throat, which pass into pure white at the margin, giving the flower a very striking appearance. Cattleya Aliciæ (labiata × Iris) has broad, rose-purple sepals and petals, and an intense crimson lip, beautifully undulate in front, and with a pair of small, rounded side lobes, which enfold the pure white column. Lælio-cattleya Lambeauiæ (L. pumila præstans × C. Hardyana) is also very fine, and has broad, rose-purple sepals and petals, with the front of the broad, very undulate lip intense purple-crimson. Lc. bletchleyensis var. Herbertii is a good, richly-coloured form, fairly typical in shape. Lastly, there are two charming hybrids of Sophronitis grandiflora, Sophrocattleya Chamber-lainiana and Sophrolælia heatonensis, whose characters are well-known, and of which the second parents are Cattleya Harrisoniana and Lælia purpurata, respectively. They form a very interesting little group.

A handsome hybrid Cattleya has been sent by Sir Frederick W. Moore, Royal Botanic Gardens, Glasnevin. It was purchased at Messrs. Armstrong & Brown's Sale of seedlings in April, 1916, and has now flowered. It appears to be a form of C. Acis (Maronii × Dowiana aurea), and most resembles the latter species in general character, but is of smaller size. All the segments are broad, the sepals and petals deep golden yellow, and the lip crimson with some yellow veining. Other good forms have appeared out of this batch of seedlings.

An attractive Læliocattleya is sent from the collection of E. F. Clark, Esq., Evershot, Dorset, which Mr. Clark suggests may be from C. Trianæ × L. pumila, with the possible alternative of C. Gaskelliana × L. Iona, both crosses having been made. We think it must be the former cross, as the very broad segments and the purple lip with deep yellow throat most recall C. Trianæ, while other details, including the flowering on the young growth without a sheath, are suggestive of L. pumila. This would make it a form of Læliocattleya Tydea, originally raised by Messrs. James Veitch & Sons, flowering in 1894.

GERMINATING CATTLEYA SEEDS.

WITH respect to the article in your August issue on Germinating Cattleya seeds (p. 189), I would suggest that our Japanese friend should sow his seeds on the compost in which other Cattleyas are growing, provided, of course, that it is in good condition. I have had some good results by this method. The watering question is the difficulty, as the minute seeds are so easily washed away. The surface may be kept moist by means of a sprayer, and when the compost beneath becomes dry partial dipping may be resorted to, the pot being immersed up to a little below the rim for a short time. It would be interesting to know the conditions under which the seeds were sown, and particularly what other plants are grown in the house, for without knowing something about these it is difficult to suggest a possible cause of failure. The great thing is to have the conditions right.

J. T. BARKER.

The historical side of the question is interesting in this connection, and we may recall some of the early experiences of Messrs. Veitch, the pioneers of Orchid hybridisation, as given in a paper read by Mr. Harry J. Veitch (now Sir Harry) at the Orchid Conference held at South Kensington in 1885 (*Journ. Roy. Hort. Soc.*, viii. pp. 22-36, with numerous figures). He remarked :—

It was Mr. John Harris, a surgeon, of Exeter, who suggested to Dominy the possibility of muling Orchids, and who pointed out to him the reproductive organs seated in the column, and showed that the application of the pollinia to the stigmatic surface was analogous to the dusting of the stigma of other flowers with pollen. This simple fact being once fairly grasped the work of hybridisation proceeded apace. The flowers of showy species of Cattleya, Lælia, Calanthe, &c., were fertilised with the pollinia of other species, and even the flowers of supposed different, but of course allied, genera were also operated upon in the same way. Capsules were produced in abundance, which in due course proved their maturity by dehiscing, and thus the long and anxiously desired seed was at length at hand. Then arose a great difficulty, a difficulty which still exists, and which our long experience has enabled us to make only a short step towards overcoming, to discover the most suitable method of raising the seedlings.

The seeds of Orchids are minute chaffy bodies of extreme lightness. So minute are they that an ordinary pocket lens is powerless to enable one to know whether the seeds are likely to contain a germ or are mere lifeless dust. When growing wild, it is evident that the contents of the mature

capsules after dehiscence are more or less scattered by the wind, perhaps wafted to great distances, until they settle on the branches of trees, on shelving rocks, or other suitable situations where the seeds can germinate, and the seedlings firmly affix themselves. Following, or at least believing that we were following Nature, so far as the altered circumstances of artificial cultivation allowed, every method or available means that could be thought of was brought into request to secure the germination of the seed. It was sown upon blocks of wood, pieces of tree-fern stems, strips of cork, upon the moss that surfaced the pots of the growing plants, in fact, in any situation that seemed to promise favourable results. But as it was in the early days of Orchid hybridisation, so it is now, we seem as far off as ever from hitting upon a method by which at least a moderate amount of success may be calculated upon; failures were at first, as now, innumerable, and numberless such are without doubt inevitable.

Among the most cogent causes of failure in the raising of seedling Orchids, there can be no doubt that the altered conditions of climate, especially the deficiency of sunlight, and the artificial treatment to which the plants are necessarily subject in the glass houses of Europe, are the greatest. The capsules neither can nor do attain the perfection natural to them in their native countries, and it is more than probable that, independently of the capsules grown in our houses being the production of cross-breeding, they do not yield a fractional part of the quantity of good seed they would do in their native land. And so with their progeny—the tender seedlings are brought into life under circumstances so different from what they would have been in their native land, that it is not at all surprising that multitudes of them perish in their earliest infancy.

Adverse as are some of the influences under which we work to obtain the capsules, there is but little difficulty in getting them, and in abundance too; sometimes even from crosses that, to the systematic botanist, would seem almost past belief; but then comes the *crux*. Good seed is the all important factor in producing healthy seedlings, and this, unfortunately, from reasons already partially reverted to, is obtainable but in a very minute proportion of the whole. Seed we get in profusion, but so little of it germinates that the patience of the most persevering is put to a severe test. The seeds of hundreds of capsules have been sown without yielding a single result. In very many cases only a solitary plant has been raised from a capsule that must have contained thousands of seeds; in very few instances indeed has the number of seedlings from one cross reached a hundred. It is true that we have raised many seedlings in the aggregate, but many of them have appeared when least expected, and when we consider the myriads of seeds that have been sown, and the comparatively few plants raised, we cannot be said to have achieved very great success

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

SHOULD the favourable conditions experienced for the last few weeks continue, the summer temperatures advised in a previous Calendar need not be materially changed. September is often a very variable month, as a quite genial period may be followed by another of damp, cloudy, and unsettled weather, necessitating a considerable modification of treatment so as to secure as equable atmospheric conditions inside the houses as possible. Every opportunity should be taken to admit air and light, so as to ripen and consolidate the growths, but during dull, cloudy weather a considerable reduction in damping down will be necessary. This particularly applies to the Cattleya, Intermediate, and Cool houses, as in the warmer divisions a certain amount of atmospheric moisture is indispensable, in order to counteract the influence of artificial heat. Even here a continually saturated atmosphere may do much harm, hence the necessity of varying the treatment in accordance with the outside conditions. It is also important to gradually inure the plants to increased sunshine, but it is impossible to make a rule which is applicable to every case, because Orchids are grown in almost every district, and the outside conditions vary so greatly as regards light and moisture. Careful observation is necessary in every individual case.

WATERING and SPRAYING must now be done with discretion, as it is quite obvious that the plants in full growth will not take up as much moisture in damp cloudy weather as when the outside conditions are clear and bright. Individual plants of the same variety vary to a great extent in the amount of water they take up. Again too little water is equally injurious in another direction. Plants cannot be successfully cultivated by any rule of thumb methods, hence the necessity of an intelligent observation of these small but important matters in our practice.

During the present month a commencement must be made to place the plants in their winter quarters, this giving the opportunity of examining every plant, and cleaning and repotting any that require it. The periodical examination of the plants is of the greatest importance, especially where large numbers and numerous varieties are grown, and even in the cleaning and re-arrangement of the plants, method is a great assistance in getting this important work done effectually and well.

CATTLEYAS, LÆLIOCATTLEYAS, and their allies will from now onwards give a good account of themselves, and so many of them produce their flowers at this season that it is impossible to enumerate them in detail. Any that are in need of new rooting material may be repotted whenever they

are about to produce new roots from the base of the pseudobulbs, which will occur soon after the flowers are faded. The newly-potted plants must be be kept on the dry side until the roots have freely entered the new compost, but shrivelling must be avoided by keeping their surroundings fairly moist and humid. This family of plants at the present day produces a succession of bloom the whole year round, and where flowers are required in large quantities there are none to compare with them for general usefulness.

LÆLIA ANCEPS and its varieties are now fast pushing up their flower-scapes, and when they attain sufficient length should be neatly staked, to prevent them from injury by touching the roof glass or getting broken.

ONCIDIUMS also that produce their flower-scapes at this season will need attention as regards staking before they attain any great length. Slugs are very fond of these young succulent flower-scapes, and must be continually watched for, and, of course, destroyed.

DENDROBIUMS.—Plants of this genus should be gone through at intervals, and those that have completed their growth removed to cooler and lighter quarters, as advised last month. The amount of moisture, both at the roots and in the atmosphere, must be considerably reduced, but dryness at the roots must be strictly guarded against. The resting period of a plant is as necessary to its full development as its growing period, and both must have proper attention if plants are to be kept in full vigour over a series of years. Plants that are still growing should have every inducement given them to complete their growth as quickly as possible. This may be attained by shutting up the house a little earlier, and exposing them to slightly more sun-heat. When their growths are completed they should be exposed to plenty of light and air to consolidate them. Sickly plants, I am fully convinced, are often due to their being coddled in badly-ventilated houses, combined with having too much water during the winter months, and not sufficient when well rooted and in full growth, a condition that applies to other genera. A fully-developed plant of the very commonest species is a delightful object.

DENDROBIUM FORMOSUM, having finished growing, is about to expand its lovely white flowers. It blooms at a season when Orchid flowers are scarce, and is doubly valuable on this account, so that it should be grown freely wherever its requirements can be satisfied. The treatment required at this season is precisely the same as advised for D. Phalænopsis. They require plenty of heat, light, and moisture whilst making their growth, and a long dry rest in a lower temperature, but they must not be allowed to shrivel if the best results are to be attained. The evergreen Dendrobiums, as D. Farmeri, thrysiflorum, and others should received a reduced supply of water as they complete their growths, but must not be so severely rested as the deciduous species of this useful family of plants.

CYPRIPEDIUMS are now pushing up their flower spikes, and these should be neatly staked as soon as they attain sufficient length, as it is very difficult to get them into position again if allowed to fall over the sides of the plant, and get twisted. If properly staked the flowers can all be seen to the best advantage. Plants of the summer-flowering section, of which there are several very beautiful and desirable varieties, may be repotted when they have passed out of bloom, should they require it. The usual compost advised for these plants will answer their requirements.

MILTONIAS.—Plants of Miltonia vexillaria and its hybrids that were not repotted last month should be done whenever they reach the desired condition. This family now produces its flowers through the greater part of the summer, commencing early in April, and as late as August there is still a good show of the later-flowering varieties, so that its general usefulness can be easily seen.

CALANTHES.—These decorative winter-flowering plants are now in an advanced stage of growth, and to secure sound, well-ripened pseudobulbs, which produce clear, well-coloured flowers, the plants should be afforded plenty of room, so that each may receive its proper share of sunlight. The plants should be elevated well up to the roof glass, and only sufficient shade should now be given to prevent damage to the foliage and pseudobulbs. Plants of the C. Regnieri section, which flower in the spring, are only half-way through their growing stage, and should be treated in the same way as the others were when in full growth.

ODONTOGLOSSUMS.—Where a large collection of these beautiful Orchids are grown there are always some of them in bloom. Those that flowered early in the year are now making their growths, and the roots from these new growths will soon be pushing in all directions, and no time should be lost in affording new rooting material to those that require it. This applies particularly to the O. crispum and O. Pescatorei types and their innumerable hybrids, also to the Odontiodas, which may be treated in precisely the same manner as Odontoglossums. Although individual plants may be repotted at any season there is a time when each individual suffers less than at any other, and September is undoubtedly the best time for the overhauling of these plants. The general conditions of the atmosphere is generally conducive to the plants quickly establishing themselves. Plants that are in a dormant condition should not be disturbed until their new growths are several inches high. A suitable compost for these plants is one consisting of osmunda fibre, AI fibre, and sphagnum moss, in equal proportions, and cut up according to the size of the plants to be potted. The pots and everything used should be thoroughly clean, the compost made moderately firm, and water applied very sparingly until the plants become re-established. The atmosphere must be kept

moderately moist, and fresh air should be admitted on all favourable occasions, especially at night. On bright days a slight spraying will also be beneficial, and help to check attacks of thrip and other pests. The plants should at all times be shaded from strong sunshine.

PLEIONES.—These charming plants need plenty of light, air, and water until the foliage changes colour, when the compost should only be kept moist. Soon after the leaves have fallen the flowers of the early-flowering varieties will appear, and if kept in a rather cool and dry position, the flowers will last for some considerable time.

VANDA CŒRULEA will now be in its beauty, and where a house can be devoted to its culture, and the proper conditions made for it, it is a most delightful subject. As the plants pass out of flower they should be rested by the gradual withholding of water, and giving air on all favourable opportunities. They require plenty of light at all times.

GENERAL REMARKS.—The season has so far advanced that we must now consider the safe keeping of the plants through the winter months, and under our artificial conditions some little forethought is necessary, in order that this may be carried out effectually. The roofs of the houses should be made watertight, the heating apparatus efficient, and everything done possible to prevent accidents during the cold winter months. At the present time there are some who look upon the cultivation of Orchids as extravagant waste, but is there not as much beauty in these flowers as in any picture made by human hands? Many years of patient care and toil have been bestowed upon their improvement, and if lost some of them can never be replaced. Such views will pass with the return of happier times, and every effort should be made to preserve the plants until the present horror has passed away.

AERIDES HYBRIDUM.—This is one of Mr. Dominy's original hybrids, which it has been remarked "does not appear to have ever been described, and now seems to have been quite lost sight of" (*Orch. Rev.*, i. p. 34). We have since found a record of it under the name of Aërides Fieldingii var. hybridum (E. Morr. in *Belg. Hortic.*, 1876, p. 287), with the remark that it is a hybrid, or more correctly a metis, raised by Mr. Dominyin the establishment of Messrs. Veitch, between A. affine and A. Fieldingii, and that the flowers have the form of the first-named and the colour of the second. A hybridum was enumerated in a list of Mr. Dominy's hybrids drawn up by Mr. Burbidge (*Gard. Chron.*, 1871, p. 44), but we have never discovered the date or what became of the plant. There is, however, a short account under the name of A. Dominyanum in the sixth edition (1885) of *Williams' Orchid-grower's Manual* (p. 100), and it may have appeared in some earlier edition, which we are unable to consult. R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on August 14th, when there was a moderate display of Orchids, and the awards consisted of three medals, and two awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the chair), J. O'Brien (hon. sec.), W. Bolton, R. A. Rolfe, F. K. Sander, J. E. Shill, J. Charlesworth, Arthur Dye, C. H. Curtis, W. H. White, C. J. Lucas, E. R. Ashton, R. G. Thwaites, F. J. Hanbury, T. Armstrong, and Pantia Ralli.

AWARDS OF MERIT.

CATTLEYA ALBION (O'Brieniana alba × Suzanne Hye de Crom).—A beautiful albino, most like the former in general character, and having pure white flowers of good shape and substance, with a prettily undulate lip, the disc of which is clear chrome yellow. The plant bore a two-flowered spike, and is not yet fully developed. Exhibited by Messrs. Armstrong & Brown.

CATTLEYA TRIUMPHANS VAR. THE BARON (Rex × Dowiana aurea).—A brilliant hybrid, having broad, bright yellow sepals and petals, the latter with some rosy veining at the apex, and an ample magenta-crimson lip, margined with rose, and closely veined with golden yellow in the throat. Exhibited by Mr. J. E. Shill, The Dell Gardens, Englefield Green.

GENERAL EXHIBITS.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, to which a Silver Flora Medal was awarded. It contained several showy Læliocattleyas, among which we noted the brilliant Lc. George Woodhams with six flowers, with forms of Lc. Robin Measures, Thyone, Rhenus, and Maqueda, the distinct Cattleya Daviesii, the pure white Miltonia vexillaria Queen Alexandra, a well-grown Ornithidium coccineum, Bulbophyllum grandiflorum with three flowers, Cypripedium Queen of Italy, C. Germaine Opoix, Bella, and memoria Alma Gevaert, a well-grown Odontonia brugensis, and a number of good Odontiodas and Odontoglossums.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a fine group of well-grown plants, in which we noted six diverse forms of Læliocattleya Appam (Lc. Scylla × C. Dowiana aurea) varying greatly in colour, Lc. Laura (Lc. Scylla × C. Rothschildiana), having salmon rose sepals and petals, and a darker zone round the lip, with much yellow veining on the disc, good forms of Lc. Hera, Serbia, and

others, the handsome Cattleya Dionysius, C. Germania, and several plants of C. Hesta, two plants of Maxillaria nigrescens, the best with twenty large blackish purple flowers, Odontoglossum amabile splendens with three fine spikes, two good O. Rolfeæ, forms of Odontioda Charlesworthii, Elsie, Brewii, Euterpe, and other good things.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal, for a good group, including Læliocattleya Soulange var. Britannic (C. Dowiana aurea × Lc. Lustre), a large and handsome form, having deep rose sepals and petals, and a dark purple lip with a yellow disc, the light green Cattleya Leopoldi Sanderæ, Brassocattleya Rex (C. Rex × B. Digbyana), having whitish sepals and petals and a light yellow, deeply-fringed lip, a good plant of Anguloa Cliftonii, Odontonia Aphrodite (M. Warscewiczii × Odm. Magali-Sander), O. Lælia-Sander, and others.

Messrs. Flory & Black, Slough, showed a fine form of Brassocattleya Ilene, having light rose flowers, with a yellow disc to the broad, well-fringed lip.

Messrs. Stuart Low & Co., Jarvisbrook, sent the distinct and rare Cattleya Warscewiczii rochellensis, bearing two white flowers with a flush of pink round the yellow disc of the lip.

At the meeting held on August 28th there was a good display of choice Orchids, and the awards consisted of one First-class Certificate, three Awards of Merit, and three medals.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), W. Bolton, Arthur Dye, W. H. White, Walter Cobb, C. H. Curtis, W. H. Hatcher, T. Armstrong, F. K. Sander, J. E. Shill, Pantia Ralli, R. A. Rolfe, Sir Harry J. Veitch, J. Charlesworth, and F. J. Hanbury.

FIRST-CLASS CERTIFICATE.

BRASSOCATTLEYA LADY VEITCH (parentage unrecorded).—A very fine hybrid, somewhat recalling Bc. Ilene in character, the flower being large and of excellent shape, and having broad, blush-lilac sepals and petals, the latter with some light purple markings near the apex, and the well-fringed lip blush-white with a light yellow disc. Exhibited by Messrs. Flory & Black.

AWARDS OF MERIT.

CATTLEYA MRS. PITT CHARLESWORTH'S VAR. (Harrisoniana × Dowiana aurea).—A remarkably dark and richly-coloured variety, the spike bearing four flowers, with deep magenta-rose sepals and petals, and the lip purple-crimson, with a deep golden yellow disc. Exhibited by Messrs. Charlesworth & Co.

CATTLEYA NAIDIA EXQUISITA (iridescens × Hardyana).—A very

beautiful variety, having broad, light salmon-yellow sepals and petals, shaded with rose, and the lip dark crimson with an orange-coloured disc. Exhibited by Messrs. Hassall & Co., Southgate.

LÆLIOCATTLEYA CANHAMINOSA GOLDEN FLEECE (Canhamiana × luminosa)-—A brilliant hybrid, bearing a spike of four well-shaped flowers, having light yellow sepals and petals, the latter beautifully crisped, and the lip freckled with rosy mauve, with golden yellow veining on the disc. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), sent Cattleya Astron (Dusseldorfii Undine × Harrisoniana alba, bearing a spike of five charming white flowers, C. Capella (Mossiæ Wageneri × O'Brieniana alba), another pretty albino, and Læliocattleya Golden Queen (parentage unrecorded), bearing a three-flowered inflorescence, the sepals and petals being buff-orange, and the three-lobed lip magenta-crimson, with a very broad front lobe.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group, including some good examples of Læliocattleya George Woodhams, and others, Cattleya Iris and the brilliant var. majestica, C. Claesiana alba, C. Saturn alba, C. Arlequin (C. Daviesii × Hardyana), a richly-coloured hybrid, Bulbophyllum grandiflorum, two well-flowered Miltonia St. Andre, Masdevallia Roezlii, Odontioda Charlesworthii, Brassocattleyas, and various other good things.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a very fine group, including Læliocattleya Britannia Regina (Lc. Canhamiana alba × C. Warscewiczii Frau Melaine Beyrodt), a superb form, bearing an infloresence of three large white flowers, with the front of the lip bright purple, good forms of Lc. Momus, Laura, Appam, Serbia, Hesta, Thyone, and Salonica, Miltonioda Thora (M. Warscewiczii × Oda. Cooksoniæ), the charming Odontonia Magali-Sander var. xanthotes with a large panicle of light yellow flowers, Cattleya Dowiana aurea, C. Gaskelliana alba, a very fine form of Odontoglossum Rolfeæ, and some brilliant forms of Odontioda Brewii, Euterpe, Wilsonii, and others.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal for an interesting group, including Læliocattleya Irensis perfecta (C. Iris × Lc. bletchleyensis), Lc. Longueval (C. Dowiana aurea × Lc. Berthe Fournier), very rich ruby purple with yellow veining in the throat, a fine Lc. callistoglossa, Lc. Rodin (C. Warscewiczii × Lc. Antigone), Cattleya Atalanta, Wavriniana, and Thurgoodiana, Eria floribunda and rhynchostyloides, Brassavola cordata, and a number of other botanical species.

Messrs. Flory & Black, Slough, sent a good form of Brassocattleya Ilene, with rosy lilac flowers.

Messrs. Hassall & Co., Southgate, staged a small group, including good forms of Cattleya Adula and Sybil, Brassocattleya Veitchii Queen Alexandra, and a few others.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on July 5th, the members of Committee present were: R. Ashworth, Esq. (in the chair), Messrs. D. A. Cowan, J. C. Cowan, J. Cypher, J. Evans, A. R. Handley, D. McLeod, J. McNab, W. Shackleton, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATE.

Dendrobium Dearei superbum, with fine large flowers, and D. Sanderæ McBean's var., quite distinct from the type; from Messrs. J. & A. McBean.

AWARDS OF MERIT.

Læliocattleya luminosa aurea var. Rossendale (C. Dowiana aurea × L. tenebrosa Walton Grange var.); from R. Ashworth, Esq.

Odontoglossum *Zulu*; from J. J. Bolton, Esq.

CULTURAL CERTIFICATES.

To Mr. E. Rogers, for Phalænopsis amabilis Rimestadiana, some of the spikes carrying over forty flowers and buds.

To Messrs. J. & A. McBean, for Dendrobium Dearei, with fine bulbs, carrying a large number of flowers.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a fine group, including Cattleyas in variety, conspicuous among them being C. Mossiæ Wageneri Baron Schröder, Læliocattleya Martinetii var. Ruby, Odontoglossum amabile var. Topaz, O Lambeauianum var. Lord Kitchener, O. percultum var. Brunette, Miltonia vexillaria Queen Alexandra, M. v. Lambeauiana, and others.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine group, including Cattleya Mendelii, C. Gaskelliana, and C. Warscewiczii, Læliocattleya Fascinator and Martinetii, Anguloa Cliftonii, a fine specimen carrying eight flowers, Dendrochilum latifolium, Thunias, Promenæa citrina, Maxillaria Sanderiana, and others.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged a fine collection of Phalænopsis amabilis Rimestadiana (a Cultural Certificate being awarded to the gardener), the rare Phalænopsis Sanderiana, and Miltonias of the vexillaria section, including the handsome M. v. Lyoth.

Messrs. Sander & Sons, St. Albans, staged Læliocattleya Martinetii, Lc. Earl Grey, Lc. Domos, and others, Odontonia Aphrodite, Brassia Lawrenceana, and Dendrobium illustre.

Messrs. Keeling & Sons, Bradford, staged Odontoglossum crispum Prince Edward, O. amabile, O. Seramis, and Miltonia vexillaria magnifica.

J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law), and Messrs. J. & A. McBean, Cooksbridge, staged interesting plants, which appear in the above list of awards.

THE ROSS ORCHID DRAWINGS.

IT is interesting to record that the Ross collection of Orchid drawings has been secured for Kew, and an account of the collection appears in a recent issue of the *Kew Bulletin*, which is here reproduced :—

Through the kindness of the Bentham Trustees, Kew has acquired a valuable collection of Orchid paintings in water colour, made by Mrs. Janet Ross, widow of the late H. J. Ross, Esq., Poggio Gherardo, Florence, Italy, formerly of Castagnolo, between Pisa and Florence. Mr. Ross, who was an ardent collector of Orchids, was for many years a correspondent of Prof. H. G. Reichenbach, of Hamburg, and as many of the drawings were made by Mrs. Ross from materials authenticated by the latter, they possess a historical value in addition to their artistic merit. They also correspond in a good many cases with materials preserved at Kew, for after Reichenbach's death, in 1889, Mr. Ross sent much valuable material to Kew. The drawings are about 750 in number, and are very faithfully executed. They represent for the most part such species as can be grown in Florence, and include a good many from Upper Burma, which were brought home by a friend from Mandalay, and formed the nucleus of the collection. Others were subsequently added, until the collection became one of the finest in Italy, numbering nearly one thousand species. Florence is too hot in summer for the cooler-growing species of the American Cordilleras, though some of them are represented in the collection, drawn from plants introduced by Mr. Ross, which generally flowered once and then rapidly deteriorated and died.

Among drawings of the original type specimens in the collection may be mentioned, Cœlogyne Rossiana, Rchb. f., a Burmese species that flowered in the collection in 1884; Paphinia cristata var. Modigliani, Rchb. f. (*Lindenia*, t. 117), an albino of a highly-coloured species; Dendrobium strebloceras var. Rossianum (*Lindenia*, t. 124), another albino; Peristeria Rossiana, Rchb. f., a species of doubtful origin that flowered in 1889; Cycnoches Rossianum, Rolfe, a Central American species which produced a raceme of male flowers in 1889, and, shortly afterwards, the large solitary female flower on the same plant; and Lycaste Rossiana, Rolfe, another Central American plant. Probably the most interesting drawing in the collection is one of Cycnoches Warscewiczii, Rchb. f., representing an inflorescence with five female flowers at the base, and over a dozen of the

much smaller and very different males above. The actual specimen was sent to Kew by Mr. Ross, and is preserved in the Herbarium. Its history is given in the *Orchid Review*, iii. p. 263. There are also paintings of four very diverse forms of Lycaste Janetæ, a hybrid between the orange-yellow L. Rossiana and the rose-coloured L. Skinneri, Lindl., showing an amount of segregation of character that is very rarely seen among primary hybrids. Another series shows a remarkable case of hybrid sporting in the dark purple-brown Cypripedium Dauthieri, a hybrid between C. barbatum and C. villosum. This first produced a sport irregularly striped and banded with purple-brown and green, which Reichenbach called var. Rossianum, and another harlequin-coloured sport, half greenish-yellow and half chestnut that was called var. Janet Ross, while still later a greenish-yellow form appeared which was called var. Poggio Gherardo, a change that may be roughly compared with an elimination of the purple colour of C. villosum, but retaining the hybrid character in other respects. The collection forms a valuable accession to the Herbarium.

It may be added that an account of the early life of Mr. Ross is given in a work entitled *Letters from the East*, by Henry James Ross, 1837 to 1857, and a Biographical notice in *Orchid Review*, x. pp. 282-284, while an account of the collection as it was preserved by Mrs. Ross is given in *Orchid Review*, xix. pp. 202-205, and of the garden generally in the *Gardeners' Chronicle* for 1912 (May 11th, p. 345). R.A.R.

ORCHIDISTS' GOLDEN WEDDINGS.

THREE of our esteemed correspondents have just celebrated their Golden Wedding, and our readers will join us in offering our heartiest congratulations, and in the expression of the hope that they may be spared to see the anniversary of the day on many more occasions :—

DR. and MRS. RUDOLPH SCHIFFMAN, of Grand View, Pasadena, California, as we learn from the *Pasadena Star News*, was married on July 26, 1867, and have lived happily through varied experiences which twelve years ago brought them to their present residence. Three generations of the Schiffman family and many friends were present at the celebration, and Dr. Schiffman drew liberally upon his fine Orchid collection to decorate the house on the festive occasion, the result being a centre-piece of Orchids and ferns of exquisite loveliness upon the dinner table, which called forth many exclamations of admiration. Dr. Schiffman is the possessor of a very beautiful garden, designed by himself, and the nucleus of his fine Orchid collection dates back as long as fifty years. All his life he has been a great lover of nature, and a good many of his Orchids are of

his own collecting. Dr. Schiffman's gardener is now Mr. Henry T. Clinkaberry, another old friend of the *Review*, and in sending the newspaper cutting, which includes portraits of the Dr. and Mrs. Schiffman, he remarks: "Both are yet young, and the Doctor is the possessor of a very good Orchid collection, rich in Cattleyas, Lælias and their hybrids, not forgetting a good selection of Brassocattleyas and Brassolælias hybrids, besides many home-raised seedlings. To-day (August 1st) the Doctor personally selected the site for a further addition to his Orchid houses. Mr. Clinkaberry also sends a description of a fine Læliocattleya raised in the collection :—

LÆLIOCATTLEYA BRASSEUR-HYE VAR. GOLDEN WEDDING (Lc. Aphrodite var. Eudora × C. Warscewiczii). Sepals and petals warm rosy mauve, beautifully frilled. Lip rich crimson-purple, mottled with deep mauve, 2½ inches across, wonderfully frilled, and the tube bright golden yellow, extending in fine lines well to the front, over which are 30 to 40 deep maroon lines. Column pure white, which accentuates much the lovely throat of the lip, showing off the lines in the tube to a remarkable degree. The influence of each parent species is observable in this beautiful hybrid, and the fringe of the lip is unusually pronounced, more so than in any other with which I am acquainted, and rivalling the best type of C. Mendelii of many years ago, collected, I believe, by Millican. The flower measures seven inches in diameter, and has a very distinct and refined appearance. The hybrid fittingly commemorates the Golden Wedding of Dr. and Mrs. Schiffman, and also fifty years by the Doctor as a grower of Orchids.

SIR HARRY and LADY VEITCH celebrated their Golden Wedding on Monday August 6th, and Orchidists will join us in hearty congratulations, as Sir Harry's services to Horticulture and Orchidology are universally known and appreciated. A card, containing the portraits of Sir Harry and Lady Veitch, was issued in commemoration of the event, and a cheque for £500 has been forwarded to the Gardener's Benevolent Institution as a thank-offering, a similar amount having been given to the funds of the Institution in 1892, in commemoration of their Silver Wedding.

SIR FRANK and LADY CRISP, Friar Park, Henley-on-Thames, have just celebrated their Golden Wedding, and by way of commemorating the event they entertained at Friar Park all the inmates of the Poor-law Institution, and Lady Crisp presented to St. Mary's Church, Henley, a silver-gilt chalice. Sir Frank Crisp is the genial President of the Horticultural Club, and his garden and unique rock-work at Friar Park are widely known. He is also the possessor of a good collection of Orchids, and on rare occasions has appeared as an exhibitor. We may also recall that the chaste Orchis maculata alba figured at p. 200 of our last volumne was grown by him.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the London Scottish Drill Hall, Buckingham Gate, Westminster, during September, on the 11th and 25th. The Orchid Committee will meet at 11.45 a.m. The following meeting of the Committee is fixed for October 23rd, as the meeting a fortnight earlier will be a special exhibition of British-grown fruits, no other exhibits being eligible.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on September 6th and 20th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for October 4th.

The protests so widely raised against the suspension of the *Kew Bulletin* as a war economy have been effective. The matter has been considered by the Select Committee on Publications and State Reports, who have recommended the resumption of its publication, and the first number for 1917 has accordingly appeared. There are two papers relating to Orchids; a Decade of New Orchids, and an account of the Ross Collection of Orchid Drawings, which has been secured for Kew. Both of them are dealt with on other pages of our present issue.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

F.W.M.—Some confusion in the record is suspected, as the two combinations mentioned are too recent for a cross between them to have reached the flowering stage. The second record mentioned, however, seems to represent the actual parentage.

N.N.E.—No further additions have yet been published.

F.M.H.—Many thanks for the offer of pollen. We only know of one hybrid from Promenæa stapelioides, namely P. Crawshayana (*O.R.*, xiii. p. 222).

J.R.—Both the letters mentioned failed to reach us.

E.W.T.—The Odontoglossum Pescatorei characters are very marked, possibly coming through O. excellens, as suggested. The other parent must have been something dark, and with more elongated segments, but we fail to recognise it. Is it not possible to trace the record?

J.H.—The names and affinities of these Orchid fungi are, we believe, unknown, because they cannot be got to fruit. They can be isolated and grown separately under suitable treatment.

The Orchid Review

VOL. XXV. OCTOBER, 1917. NO. 298.

OUR NOTE BOOK.

SOME interesting questions relating to hybrids have been accumulating, and one of them is the best way of dealing with the numerous hybrids of unknown or unrecorded parentage. The most practical course we can suggest is to fit them into their proper places as nearly as possible by comparison with existing hybrids of known parentage. The majority, we believe, are stray seedlings from batches of known parentage, though there are others that are distinct of which the record has been lost, perhaps in a few cases never put down in black and white, and memory is proverbially fickle. Another cause of error on which a correspondent lays some emphasis is the accidental misplacing of labels during potting operations; but this is by no means limited to hybrids. A useful means of preventing the latter confusion is to have a number of small strips of lead stamped with a series of running numbers, corresponding to a numbered Catalogue in which the names are written. These lead strips are easily clipped round the rim of the pot, and thus are less liable to be misplaced. In some collections all the plants are numbered in this way, in preference to having the name of each plant written on a separate label, and the Catalogue is kept in some handy place for a quick reference when required. The history of the plant can also be recorded with the name, and we have seen the system adopted with much success, both with established plants and hybrid seedlings.

Of course, it is essential that the Catalogue should not get astray, or the numbers would be useless, and this recalls a batch of numbered seedlings that were pointed out to us some time ago. They had been purchased at a sale in the belief that the crosses were good, but no trace of a Catalogue was forthcoming, and some of them ultimately gave a great deal of trouble on reaching the flowering stage, for the owner likes to have his plants correctly named, a thing which is not always possible in such cases. In establishments where progressive hybridisation is carried on as a business, a very methodical system of recording by means of numbers is adopted, but even here stray seedlings occur, though on flowering it is often

possible to trace the batch to which they belong by means of their characters, in spite of the polymorphism seen among secondary hybrids of complex parentage. The knowledge of the crosses that have been made renders this possible, but without any record whatever, as in a good many cases submitted to us, the task becomes difficult, and sometimes impossible.

Acting on the assumption that these stray seedlings are generally forms of existing hybrids, we think that they should be referred to the hybrids they most resemble, a varietal name being added in cases of merit. This, we think, would be preferable to giving a separate name, and adding "parentage unrecorded," as is so often done, for the latter course implies that they are at least new, though of unknown parentage. The well-known polymorphism of secondary hybrids has to be taken into consideration in dealing with these aberrant forms. The origin of such as are really distinct may sometimes be made out by comparison, and in any case is likely to be traced when other seedlings flower.

With respect to the hybrid described on page 215, we are reminded that the name was originally Madame (or Mme.) Brasseur Hye, and that in its abbreviated form it would occupy a different place in the alphabetical arrangement. The fact was not overlooked, but the charge did not originate with us, for we have already a Læliocattleya Brasseur-Hye var. Wilps, to which the same objection—if there is one—applies. It is the old question of a bad start; of a specific name not in accordance with the rules. A specific name should consist of a single word, an exception being made where two words can be written as one by the addition of a hyphen. A varietal name can then be added euphoniously. The varietal name does not matter, because there is nothing more to add. But we have specific names consisting of four and five words, and in such cases something is sure to drop out, and entirely without reference to alphabetical position. There is a Læliocattleya that has been variously called "The Hon. Mrs. Astor" (indexed under T.), "Hon. Mrs. Astor" (under H.), "Mrs. Astor" (under M.), and "Astoriæ" (under A.), and as a specific name the last alone has the sanction of the rules, and is the only one to which a varietal name can be added euphoniously. The case is not comparable with that of florists' flowers, where the specific name can be understood. Hybrid Orchids are far too numerous, and the omission of the specific names would lead to endless confusion.

The majority of specific names are already in accordance with the rule, and its utility is generally admitted, but we think that it should be applied without exception, limiting florists' names to varieties.

PROFESSOR H. G. REICHENBACH.

OUR issue for April last contained (pp. 75-79) an account of the Orchid work of the late Dr. John Lindley; in the present one we propose to speak of that of his successor, Prof. H. G. Reichenbach, of Hamburg, who, during a period of nearly forty years, described such an enormous number of novelties, and whose final act of sealing up his Herbarium for a quarter of a century has already been dealt with very fully (see *O.R.*, xxi. pp. 273-278, 299-301; xxii. pp. 125-130, 206-207).

Reichenbach commenced his study of the family with the European Orchids, his first work, entitled "Tentamen Orchidographia Europææ," appearing in 1851, being one of the volumes of his father's great work, the *Flora Germanica*. This he both wrote and illustrated, and in the preface he remarked that for ten years he had devoted himself to their study, so that he must have commenced as a boy of eighteen, for he was born on January 3rd, 1823. The work occupies a quarto volume, and is dedicated to Sir William Hooker, Dr. Frederick Klotzsch, and Dr. John Lindley.

His earliest published paper was an account of the Mexican Orchids collected by Liebold, which appear in *Linnæa*, in 1844, in which several new species were described. This was soon followed by a series of papers entitled "Orchidographische Beitrage," which appeared in the succeeding and three later volumes of the same serial publication. In it many new Orchids were described from various sources. In 1849 he also published in *Linnæa* an account of a set of Tropical American Orchids from Dr. F. Klotzsch, these having been obtained by various collectors.

In 1852 he published, in the *Botanische Zeitung*, a series of five papers entitled "Gartenorchideen, this being preceded by four short papers on other Orchids. A few of the plants are recorded as from Continental collections, but the majority appear to have been described from dried specimens. In the same volume we find a set of three papers, entitled "Neue Orchideen der Expedition des Herrn J. de Warsczewicz," the plants being chiefly Central American. Here, it may be noted, was described the handsome Odontoglossum chiriquense, which was figured at page 177 of our last volume.

In 1852 also appeared his essay on the Origin and Structure of Orchid pollen, this being illustrated by two plates. It includes a brief sketch of the tribes of Orchids, and a short paper on Catasetum and Cycnoches.

Soon afterwards commenced a series of papers in *Bonplandia*, dealing mostly with collections of dried Orchids. In 1854 appeared papers on the Orchids collected by Wagener in Venezuela, an additional series from

Warscewicz, and a collection from Schlim, all containing descriptions of numerous novelties obtained by these collectors during their travels in the Andes. In the following year we find papers on some Ecuadorean Orchids collected by Jameson, and some from Hong Kong by Hance and Seeman, with a paper entitled "Notulæ Orchidaceæ," in which various cultivated Orchids were described. There were also two or three short papers. In 1856 appeared papers on the Peruvian Orchids of Ruiz & Pavon, the Mexican ones of Mirandola, and a longish paper bearing the whimsical title of "Stipulæ Orchidaceæ Reichenbachianæ intra Folia Lindleyana intraaxillares," whose character is indicated by the title. A year later came a paper on Zollinger's Javan Orchids. In these several papers a large number of novelties were described.

In 1854 Reichenbach commenced his *Xenia Orchidacea*, a quarto work devoted to the description and illustration of Orchids in general. This appeared in parts, at intervals, the first volume being completed in 1858, and it continued down to 1883, when a third part of volume iii. appeared. Some of the plates are partly coloured, but the majority are in black and white, and some of the sketches are rather diagrammatic.

At the same time short papers were appearing in various works, and one in the *Botanische Zeitung* for 1862, is interesting as containing species from British collections, namely, Cypripedium Dayanum from Mr. John Day, of Tottenham, and Phalænopsis Lowii, Dendrobium Bullenianum, D. Draconis, and a few others from Messrs. Hugh Low & Co. In the following year we find Dendrobium Parishii from Messrs. Hugh Low & Co. and Bulbophyllum psittacoglossum from Mr. Day. In 1864 we find Odontoglossum Warnerianum and O. leucomelas from the collection of Mr. Robert Warner, of Chelmsford, in addition to some from the previously-mentioned contributors.

In 1865 appeared the earliest contribution to an English journal that we know of, for the *Journal of Botany* for that year opened with an account of "Neotinea intacta, the new Irish Orchid," the paper being illustrated by a partly-coloured plate. The announcement that the plant had been discovered in County Galway by Miss More had been made a few months earlier, and Reichenbach remarked: "This was a great botanical surprise," the species being chiefly a native of the countries bordering on the Mediterranean. The paper dealt with its structure and distribution.

In 1865 we also find, in the *Botanische Zeitung*, a paper on "Zwei neue Phalænopsis." The species were P. Lueddemanniana and P. Parishii, and the paper was written from Kew, and dated April 26, 1865. It was in this year that Reichenbach's long connection with the *Gardeners' Chronicle* began, the earliest contribution that we find being in the issue for May 6th, the date of his death 24 years later. It related to the two species of

Pha ænopsis just mentioned. From the time of Lindley's death he became a regular contributor, the connection being continued down to May, 1889, when he also joined the great majority. What this means can best be judged when we recall the fact that it was a period of unexampled activity, when importations were literally pouring in, most of them containing novelties which, as they flowered, had to be named, classified, and described, so that the information might be available to all whom it might concern. And it has been remarked as curious that although this great activity was largely British, no one here was found competent or willing to continue the work so long carried on by the illustrious Lindley, and the materials had to be transmitted to Hamburg, with results that have been seen in the tragic sequel.

Reichenbach contributed the account of the Orchidaceæ to the sixth volume of *Walper's Annales*, which appeared between 1861 and 1865. It was mainly a compilation of his own and Lindley's descriptions, published after the latter's *Genera and Species of Orchidaceous Plants*. It incorporated very freely the keys to the species given in Lindley's *Folia Orchidacea*, and also his notes, the original part of the work chiefly consisting in the reduction of numerous genera, a point to be considered presently.

One can only mention a few of Reichenbach's papers, which were very numerous, upwards of eighty being enumerated in the Royal Society's *Catalogue of Scientific Papers*. Among the later ones, however, we may mention accounts of the Orchids collected in Angola by Dr. Welwitsch, in Assam by Gustav Mann, in Moulmein by Parish, and in the Andes by Roezl, Wallis, and others, the sources of these and other papers being the publications *Flora*, *Linnæa*, the *Hamburg Garten-Zeitung*, the *Transactions of the Linnean Society*, and others. Nor must we omit that he worked up the Orchids for Seeman's *Flora Vitiensis* and for the *Botany of the Herald*.

There remain a few independent works. His *Beitrage zu einer Orchideenkunde Central America's* appeared in 1866, and contained accounts of the Orchids collected by Warscewizc, Œrsted, Wendland, and Hoffmann, all containing many novelties, some of which were illustrated in a series of ten plates. Two years later came his *Beitrage zur Orchideankunde*, giving an account of a monster of Selenipedium caudatum, and of the genera Aganisia and Saundersia, all being illustrated. In 1871 appeared his *Beitrage Systematische Pflanzenkunde*, containing an account of the Australian Orchids collected by Robert Brown and others, this being dedicated to George Bentham.

Lastly we have his *Otia botanica Hamburgensia*, which appeared in two parts, in 1878 and 1881. This contained an account of the Orchids collected in Ecuador by Lehmann, in Cambodia by Godefroy Lebeuf, in

Burma by Parish, in Polynesia by Wilkes, in Africa by Schweinfurth in Africa and the Comora Islands by Hildebrand, in Brazil by Warming, and a miscellaneous African collection received from Kew.

These papers contained the descriptions of a vast number of novelties, a good many of which are well known from garden specimens, living or dried, from figures, or from duplicate types. But in many other cases the type specimen was unique, or the plant died without a drawing being made or a specimen dried, and for such species one has to rely on the original description. An extract from an Obituary notice which appeared in the *Proceedings of the Linnean Society*, written before the fate of the Herbarium was known, will illustrate this point.

"Reichenbach has been the sponsor of an innumerable host of new species, varieties, and hybrids; every scrap or drawing or memorandum was carefully hoarded for his herbarium. This, therefore, has become the key to his life-long labours, and the destination of it will be eagerly awaited; a careful working of it by competent hands will be needed to clear up the many puzzles in his descriptions, which of late years had assumed an esoteric character, presuming on an almost equal knowledge of plants to that possessed by the author. The state of his herbarium is also quite unknown, for during long years past no botanist has been permitted to have even a glimpse at it."

A subsequent experience of over a quarter of a century amply confirms these remarks, for it is quite impossible to make out what was intended by some of these descriptions. An example will illustrate this point. What is Brassia arcuigera? We turn up the description, and find as follows:—

"BRASSIA ARCUIGERA, sp. n.—Bracteis triangulis ochreatis acutis ovaria pedicellata longe non æquantibus; sepalis linearibus acuminatis, labello paulo longioribus; tepalis subæqualibus brevioribus; labello oblongo pandurato aristato, lamellis in basi semioblongis geminis intus papillosis, antice utrinque in arcum extrorsum excedentibus; columna basi ampliata."

"One of the Peruvian introductions of Messrs. Veitch. It is in the way of Brassia Lanceana, but the flowers are smaller.—H. G. RCHB. FIL."

Dimensions, so important a part in such descriptions, are conspicuous by their absence—this, indeed, is characteristic of much of Reichenbach's work—and the hopelessness of attempting to identify the plant among Peruvian Brassias is increased by the fact that such characters as are given apply equally well to other species of the genus, as may quickly be found if any one cares to test the question by comparison. The description may or may not be good, as far as it goes, but it is inadequate, and although this would not so much matter if the original specimen could be consulted, it becomes exasperatingly obvious when one has a Peruvian Brassia to name and finds the original specimen sealed against him for a quarter of a

century. The law of priority forbids the imposition of a new name, but it is an abuse to extend its protection to such cases, for the intention to paralyse future work by sealing up his Herbarium was deliberate and calculated. "He was jealous to excess of any supposed encroachment on his special preserve; his treatment of the same was characteristic," remarks the obituary notice above-mentioned. It was that, but one never expected to see it carried to posthumous lengths.

The systematic value of Reichenbach's work is difficult to estimate, as so many of his species are still unknown, but he had some curious ideas as to generic distinctions. For instance, in *Walper's Annales* he reduced Cattleya to Epidendrum, while Lælia, Brassavola and Schomburgkia were made synonymous with Bletia. Yet the closely allied Sophronitis was kept distinct. Brassia was merged in Oncidium, and Aspasia and Gomeza in Odontoglossum, while Bollea, Pescatorea, Warscewiczella, Kefersteinia, Promenæa, and Huntleya were all transferred to Zygopetalum, which thus became a large polymorphic aggregate. Otochilus and Pholidota were also reduced to Cœlogyne, Oberonia to Malaxis, and Megaclinium to Bulbophyllum.

The difficulty of understanding his system was expressed by Bentham when working up the Orchids for the *Genera Plantarum*, for in a preliminary essay, after a highly complimentary reference to Reichenbach's work and competence, he remarked: "In his numerous publications he has proposed, modified, combined, or suppressed a large number of genera; but he has nowhere as yet given any synopsis of contrasted characters so as to give a clue to the principles upon which he would limit the tribes and genera he would adopt. . . . He appears, for instance, generally to rely upon floral characters, to the exclusion of vegetative ones, more on the absolute number than on the form and arrangement of the pollen masses, and often to attach much more importance to the calli, lobes, and appendages of the labellum and column than I should do in respect of genera. I trust, however, he may yet give us a clue to his systematic views in time for use in the new part of our *Genera Plantanum* now in preparation."

But the invitation was never accepted; on the contrary it is on record that Reichenbach felt aggrieved by the remarks, and that when the work appeared he indeed projected a series of criticisms in the *Journal of Botany* about Mr. Bentham's Monograph, stipulating that he was not to be fettered in the expression of his opinion. The project, however, was never carried into effect. Perhaps a simpler and more drastic method was adopted of dealing with those who ventured within the precincts of his sacred preserves. At all events the following MSS. note appears in the Kew copy of the *Journal of Botany* containing the obituary notice and that of the disposal of his Herbarium: "Reichenbach told me more than once that

his collections would go to Kew; but latterly he was strongly prejudiced against those who had taken up the study of Orchids in this country. W.B.H."

Here stands revealed the crime in all its full enormity. In a country where Orchids had been grown to a greater extent than in any other, some person or persons had dared to study them. It mattered not that it was a country that had facilated his own researches in every possible way, and from which he had received every kindness from the hands of his illustrious predecessor, from Kew, and from practically the whole Orchid industry, and from which indeed the bulk of the materials in his possession had been obtained; the naked fact stood revealed—they had invaded the secret preserves, and the full penalty of excommunication should be effected.

ODONTOGLOSSUM CARINIFERUM, Rchb. f.—This distinct Central American Odontoglossum, which has become very rare in cultivation, affords an example of how a name may sometimes go wrong, for it is the plant figured at t. 4919 of the *Botanical Magazine* as O. hastiferum var. fuscatum, Hook., and in looking through an old collection the other day we found it still doing duty under the wrong name. This plant is said to have been collected in Venezuela by Mr. Birschell, and flowered with Messrs. Jackson & Sons, Kingston Nursery, in March, 1856. It is added: "It proves to be a variety of the Odontoglossum figured by us at tab. 4272, the O. hastiferum of Dr. Lindley, with the sepals and petals of a uniform brown colour in the inside, instead of being green with transverse brown lines." But a glance at the very characteristic lip will show its identity with O. cariniferum, Rchb. f., a species discovered at Chiriqui, by Warscewicz, in 1848, and discribed some four years later (*Bot. Zeit.*, 1852, p. 638). Reichenbach afterwards remarked: "There is scarcely a doubt that the information obtained from Mr. Jackson was erroneous. The specimen came from that surprising sale of Mr. Bridges, April, 1856, and the plant, indeed, was living, and not a bad one." When the species first flowered in this country is uncertain, but there is a garden specimen in Lindley's Herbarium, with a painting of a single flower, labelled "Hort. Leach," but it is undated. At all events the species remained rare until 1870, when Messrs. Veitch received a small importation from Costa Rica, where it is said to occur in the forest on the mountain slopes facing the Pacific, growing on the tops of trees in company with O. Œrstedii and O. Schlieperianum. And Mr. Day, who purchased some plants from an importation sold at Stevens' in March, 1870, and who figured it in March, 1871 (*Orch. Draw.*, xiii. t. 29, 32), added that the importation contained also Pescatorea cerina, Trichopilia coccinea, and Oncidium cheirophorum. We do not remember any recent importation of Chiriqui Orchids.—R.A.R.

CATTLEYA FABIA.

CATTLEYA Fabia, the fine hybrid between C. labiata and C. Dowiana aurea, is one of the most brilliant Cattleyas in existence, and the way it brightens up our collections during the autumn months, and the frequency with which it appears upon the exhibition stand, is a testimony to its high decorative value. It was originally raised by Messrs. James Veitch & Sons, flowering for the first time in November, 1894, when it

Fig. 26. Cattleya Fabia var. Sunset.

received an Award of Merit from the R.H.S. The cross has been many times repeated, the variety Sunset, here figured, from the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., is a fine, rose-coloured form, and is remarkable for the large amount of buff yellow in the throat of the lip. It received an Award of Merit from the R.H.S. in November, 1912, when a similar Award went to the variety gloriosa, which is equally

remarkable for its more brilliant colour. The occasion was the great show of autumn-blooming Orchids, and no fewer than fifty plants of C. Fabia were exhibited, bearing an aggregate of over 200 flowers. The two varieties came from two different crosses, and are marked by the differences just pointed out. The most brilliantly-coloured variety that we remember is Vigeriana, raised by M. Ch. Maron, in which the peculiar saturated colour of C. labiata flammea (which was the pollen parent) persists. It is figured at p. 89 of our sixteenth volume. At the other end of the series is the variety alba, having white sepals and petals, and a richly-coloured lip, the white denoting the influence of C. labiata alba.

Such a brilliant hybrid was naturally soon in request as a parent, and at the present time we find that it has been re-crossed with both its original parents, with five other species of the labiata group, with ten hybrid Cattleyas, including the natural hybrid C. Hardyana, and with C. velutina. Outside the limits of the genus we find combinations with Lælia pumila, Brassavola Digbyana, a dozen Læliocattleyas, four Brassocattleyas, two Sophrocattleyas, one Sophrolælia, and three Sophrocatlælias, with others to follow. A comparison of the whole series would be interesting.

PHALÆNOPSIS GERSENII.

A FORTUNATE circumstance has led to the recovery of an important type drawing, including an interesting Phalænopsis that has been completely lost sight of. In 1862 a Phalænopsis was described under the name of P. zebrina var. Gerseni (Teijsm. & Binn. in *Nat. Tijdschr. Nederl. Ind.*, xxiv. p. 320), but it now proves to be quite distinct. The circumstances of its recovery are interesting. There is a drawing in the Kew collection of Illigera pulchra, Blume, a Malayan climbing shrub, which is localised, "Banca, Binnendijk." A reference to this drawing had to be made, when it was noticed that there was a painting on the reverse side of the paper, which proved to be three single flowers of Phalænopsis. The names had been added by Sir J. D. Hooker, and on reference to the Hooker correspondence a letter was found, from M. J. Binnendijk, dated May 1st, 1861, in which it is remarked: "Inclosed I send you a sketch of three Phalænopsis flowers, n. 1. Ph. zebrina, n. 2, Ph. *z.* var. Gerseni, and n. 3, Ph. violacea, of which there is another variety with white flowers, all of which may be of great value to amateurs." The others mentioned were described at the same time, but P. zebrina afterwards proved synonymous with P. sumatrana, Rchb. f., and P. violacea had been described just previously by Reichenbach under the same name. The paintings are most carefully done, and quite life-like, and the interesting point is that the

so-called var. Gerseni is exactly intermediate between the other two, and is clearly a natural hybrid between them. Coming to the history of the plants, we find that both P. zebrina and P. violacea were collected at Moeara Enim, in the Province of Palembang, the former by Gersen and the latter by Teijsmann. The var. Gerseni is said to have the habit of P. zebrina, but to differ in having the segments striped with violet and spotted with the same colour at the apex. The habitat is not mentioned, but it was presumably collected by Gersen with P. zebrina. There is also described a P. zebrina var. lilacina, said to have been collected by Th. Lobb, with transverse lilac lines on the lateral sepals, and the front lobe of the lip lilac; characters belonging rather to P. violacea than to P. zebrina, hence the suspicion that this may be another form of the same hybrid. P. violacea var. alba is also described (*l.c.*, b. 321), and is said to differ from the type only in having white flowers tipped with green. And there is one other Phalænopsis, namely, P. bella (*l.c.*, p. 321), found in woods at the foot of Mt. Salak, by Teijsmann, and this evidently agrees with P. Hebe, Rchb. f., the plant now known as Kingiella Hebe, Rolfe (see p. 197).

One natural hybrid of P. violacea has long been known, namely, P. Valentinii, Rchb. f., of which P. cornu-cervi is the other parent—and this, according to Mr. Ridley, also occurs in the Malay Peninsula, where the two species grow together. The occurrence of a second one is interesting, and it is curious that the status of the plant should have remained unsuspected for so many years.—R.A.R.

Oncidium Forbesii.—The Oncidiums of the O. crispum group, when well-grown, are very effective autumn-flowering plants, and O. Forbesii, of which we have some fine flowers from the collection of William Bolton, Esq., Wilderspool, Warrington, is one of the best. Its handsome flowers are of a glossy reddish brown, with a broad irregular yellow margin, and on strong plants are produced very freely, in graceful sprays. The species is a native of Brazil, and originally flowered in the collection of the Duke of Bedford, at Woburn, in 1837, and was named in compliment to Mr. Forbes, who had charge of the collection, and was one of the most skilful growers of his day. It is figured at t. 3705 of the *Botanical Magazine*. It succeeds well suspended in a light position in the Intermediate house.

Cattleya Ariadne.—A flower of this pretty hybrid between Cattleya labiata and C. dolosa comes from the collection of F. J. Hanbury, Esq., Brockhurst, East Grinstead, It is from a seedling raised in the collection, and combines well the characters of the two species. The plant is of dwarf habit, the flower fairly intermediate in size and shape, and the colour bright purple, with a little yellow in the throat.

CALENDAR OF OPERATIONS FOR OCTOBER.

By J. T. BARKER, The West Hill Gardens, Hessle, E. Yorks.

WE may now at any time expect frost, cold nights, or wet sunless days, and we shall therefore have to rely on the heating apparatus to maintain the temperatures in the different departments. October is often a very changeable month, and much attention is necessary to meet the falls in the temperature of the external air, so that the evil effects to the plants from fluctuations may be avoided.

TEMPERATURES.—After a season like the present it is advisable to reduce the temperatures of the different departments gradually down to the winter figures, which should run as follows:—

East Indian or Warm house, 65° to 70°.

Cattleya and Mexican house, 60° to 65°.

Intermediate house, 58° to 62°.

Odontoglossum house, 55° to 60°.

A resting house, where a dry atmosphere is maintained, should be kept at a temperature of 55° to 60° for Dendrobiums and other plants which delight in a long season of rest.

As I have previously remarked, the resting of these plants is as necessary as the production of fine growths, if the best possible flowers are to be obtained. Should extremely cold weather prevail, a slight fall in the temperature of any house will do no harm, provided it is not allowed to remain for too long a time, and the atmosphere is kept in a dry condition. Fluctuations, however, must be avoided as much as possible, and no pains should be spared to maintain the temperatures somewhere near the proper figures. Nothing thrives in unsuitable quarters, and it is a most interesting study to find out the requirements of individual plants at different seasons of the year. Our collections are made up of such a number of different species and hybrids, each requiring some difference in treatment to produce its best form, that it should be qnite obvious how essential to success are these apparently small matters.

SHADING.—By the time these lines appear in print all the blinds can be safely dispensed with. The plants should be gradually inured to the light, and on bright and warm days increased ventilation should be given. There have been more Orchids killed in the past from coddling, perhaps, than from any other cause, not excepting over-watering.

WATERING.—This, the most important factor in Orchid culture, needs especial attention at this season, and for two reasons. Firstly, attention must be given to the state of growth of individual plants. If growing, the plant should be watered whenever it becomes dry, and if resting it should

have sufficient water to prevent shrivelling. Secondly, every plant should have sufficient water to keep its rooting system in a healthy condition. Here, again, extremes must be avoided, for the effect of too much water is just as bad as that of too little. Both means the loss of the roots and the vitality of the plants.

ATMOSPHERIC MOISTURE.—With the reduction in temperatures there must be a corresponding reduction in the amount of atmospheric moisture, and the proper balance of heat and moisture must be carefully maintained. An over-heated, stuffy atmosphere is as harmful as a cold, damp, and saturated one, and both extremes must be strictly avoided.

DENDROBIUMS that have finished their growths should be thoroughly cleaned and placed in their winter quarters in the resting house. This is easily accomplished now that they have all attained that condition, and if cleaned and arranged they should not be much trouble until their flowering nodes begin to swell in the spring. Sufficient water to prevent them from shrivelling will be almost their only requirement.

CYPRIPEDIUMS which are now pushing up their flower spikes will also be much improved by going through the same process. By cleaning them, and neatly staking up their flowers, as they attain sufficient length, and arranging them in the house in which they are to produce their bloom, it is possible to save much labour and time. C. superbiens (Veitchii), unfortunately not too common, should be repotted, if necessary, as it passes out of bloom. This plant succeeds when grown in a Cattleya house temperature, potted in the compost advised for other tesselated-leaved Cypripediums. Not being a strong-rooting member of this large genus, it should not be placed in large receptacles.

CATTLEYAS AND ALLIES.—Cattleyas and Læliocattleyas are now making a great display, and it is a question which is their best season, spring or autumn. But there are now so many brilliant hybrids that the flowers may be enjoyed the whole year round. Any plants that have flowered, and are now pushing new roots, may still have new material if the old compost is at all decomposed. Plants potted at this late season, however, should be watered with extreme care, and only sufficient water should be given to keep them plump until the roots have freely entered the new material.

LÆLIA ANCEPS and its varietias are now pushing up their flower spikes rapidly, and must have generous treatment. The spikes should be carefully and neatly staked, and should be tied in such a manner that their tips are clear of the glass.

LÆLIA PUMILA and other Lælias which were placed in the Cool house for the summer months had better now be returned to the Intermediate house, and there given liberal supplies of water at the roots until they have finished flowering and their growths are complete. When new roots are

observed to be pushing any necessary repotting may be done. They succeed in shallow pans, suspended from the roof, and a similar compost to that used for Cattleyas will answer their requirements. For these small growing plants it is necessary to cut the material smaller than when potting plants of larger stature.

ODONTOGLOSSUMS.—The newly-potted plants of this genus should be carefully looked over to see when water is required and watch should be kept for any slugs which may have been brought in from the new materials. O. grande, O. Insleayi, and O. Schlieperianum are generally called the autumn-flowering section. They are plants of easy culture, and their large flowers are most valuable during the winter months. They are best accommodated at the coolest end of the Intermediate house, and delight in liberal supplies of water at the roots whilst making their growth. After flowering they enjoy a season of rest, when only sufficient water to keep them plump is necessary.

PHALÆNOPSIS, Vandas, Aërides, and other bulbless Orchids will require less water, both at the roots and in the atmosphere, during the dull days of winter. When the tips of the roots become sealed over they will require only sufficient to prevent the plants suffering. They should receive the maximum amount of light during the short days.

MILTONIAS.—Miltonia spectabilis and its variety Moreliana, with M. Clowesii and M. Regnellii, are interesting members of this genus, producing flowers during late summer and early autumn. After the plants have bloomed, and the pseudobulbs have finished growing, the supply of moisture at the roots should be gradually reduced, and the rooting material kept on the dry side until growth becomes again active in the new year. M. Roezlii, its variety alba, and M. Phalænopsis are plants not often seen in good condition at the present day. Their constitution is not so strong as M. vexillaria, and they should therefore have every attention. They require a slightly higher temperature than M. vexillaria, and should be grown at the warmest end of the warm Cattleya house. Those plants which have commenced to grow may be repotted, should they require new rooting material. They succeed in a similar compost to M. vexillaria, and, like that species, must have water applied sparingly until they have taken hold of the new material.

CYMBIDIUMS.—Strong healthy plants of Cymbidium Tracyanum, C. Lowianum, C. insigne, and many hybrids that are now showing flower spikes, should not suffer for water at the root, others which have not as yet shown their spikes should be kept on the dry side for some little time longer, otherwise growth will commence and the plants fail to bloom. Plants of this genus that are in a pot-bound condition will derive benefit from occasional waterings of weak liquid manure.

Oncidiums.—In the Cool house several species of these useful plants, such as O. crispum, Forbesii, varicosum and others are developing new roots and flower spikes. These plants produce flowers so abundantly that they exhaust themselves quickly if the flowers are allowed to remain upon the plants for too long a period. To keep the plants in good health it is advisable to remove the spikes soon after the flowers are open, and weak plants should have them removed as soon as they are observed. After flowering the plants should have a good rest, but not be allowed to suffer for the want of moisture at the root. This also refers to O. concolor, which by this time will have made up its bulbs, but resents a long dry rest more than the others mentioned.

Thunias.—As soon as the plants have lost their leaves they may be placed in their resting quarters. Those plants which have not yet lost their foliage should have water afforded them from time to time, and they should be syringed occasionally to keep them free from red spider and thrip, which often affects them at this season.

General remarks.—Every opportunity should be taken to push on with necessary work, much of which is very pressing at this season, especially with the limited staffs now available. The cleansing of the houses and the plants is of the greatest importance, and takes up much time, for if it is to be effectual it must be thoroughly done. Thoroughness is more essential in plant cleaning than perhaps anything else, as when only half done we may safely say it is not done at all. The placing of the plants in their winter quarters is an item which will occupy our time during the present month, and efforts should be made to give every plant a position to its liking. The winter months are the best to eradicate scale and other insect pests which trouble us, and war should be made on everything which feeds on the life-blood of our plants. The true horticulturist is always fighting the pest which affect his plants, well knowing that it is one of the essentials to success.

Cattleya Olivia.—Flowers of an attractive hybrid are sent from the collection of E. F. Clark, Esq., Evershot, Dorset. There is a little doubt about the exact parentage, though Mr. Clark believes it came from a cross, C. intermedia × Trianæ nivea, made by him in April, 1903, as other crosses, which he mentions, would not account for the characters. We fully agree. As to C. intermedia, there cannot be the slightest doubt, for the resemblance to C. suavior, in colour and other details, is unmistakable, and the modifications are such as would be expected from the influence of C. Trianæ. The flowers are blush pink, with the front of the lip crimson purple. C. Olivia was originally raised by Messrs. Veith from the reverse cross, and received an Award of Merit from the R.H.S. in October, 1897.

DENDROBIUM PHALÆNOPSIS.

THIS useful autumn-flowering Orchid should soon be making a good display, and what it is capable of when well-grown may be seen in the annexed figure, which represents a plant in the collection of Mrs. B. B. Tuttle, Naugatuck, Conn., U.S.A. (gr. Mr. M. J. Pope). As many as four

Fig. 27. DENDROBIUM PHALÆNOPSIS.

good spikes are borne from the apex of the same pseudobulb, giving a very pleasing effect. It is a good many years since the species was introduced in quantity by Messrs. Sander, and if it is now less common than formerly it is probably because it requires a rather warm house to bring it to perfection.

Its flowers are also particularly liable to injury by fogs, which in urban areas are rather prevalent at the time it is in bloom. The best means of counteracting this is to get it to start and mature early, and thus open its blooms before the foggy season sets in. The flowers vary greatly in colour, from bright purple, through various shades of lilac and blush, down to white, mostly with darker markings on the lip, but in the variety hololeuca the purple is entirely eliminated, resulting in a chaste and beautiful albino. The plant should be grown in baskets, suspended in a light position in the warmest house, and when the growths are mature it should receive a good rest in a drier position in the same house. It should not be removed to a cool position when at rest, as it is unnatural to the species, and experience has shown it to be injurious. When grown under such conditions we have seen it producing its beautiful spikes in profusion, and as these are very useful for cutting it is a plant that repays a little extra attention. It is a native of northern Queensland and some of the islands in and near the Torres Straits, one of the best-known being Timor laut, where it was found by Mr. H. O. Forbes some time prior to its introduction in quantity. A fine exhibit of D. Phalænopsis, and its charming varieties Rothschildianum and album, from the collection of W. R. Lee, Esq., is recorded at page 234.

SOCIETIES.

ROYAL HORTICULTURAL.

THE usual fortnightly meeting was held at the London Scottish Drill Hall, Buckingham Gate, Westminster, on September 11th, when there was a good display of Orchids, including three medal groups, and Awards of Merit were given to two choice Læliocattleyas.

Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), W. Bolton, Arthur Dye, C. J. Lucas, Gurney Wilson, J. Charlesworth, Walter Cobb, F. K. Sander, S. W. Flory, J. E. Shill, Stuart H. Low, R. A. Rolfe, J. Wilson Potter, T. Armstrong, F. J. Hanbury, and Sir Harry J. Veitch.

AWARDS OF MERIT.

LÆLIOCATTLEYA BRONZE-KING (luminosa × Anaconda).—A handsome hybrid, the flowers being large and of fine shape, with broad, orange-buff sepals and petals, and a magenta-crimson lip, with deep yellow veining in the throat, and the margin lilac. Exhibited by Messrs. Armstrong & Brown.

LÆLIOCATTLEYA COMMANDER-IN-CHIEF (C. Iris × Lc. Mrs. Evelyn Norrie).—A charming thing, the flower having broad, citron-yellow sepals and petals, a claret-crimson lip, veined with yellow at the base, and the

column white; the colours thus being well contrasted. Exhibited by Messrs. Armstrong & Brown.

GENERAL EXHIBITS.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), showed Læliocattleya Helene (Lc. bletchleyensis × C. Adula), bearing a spike of bronzy rose flowers with a purple lip, two plants of Anguloa Cliftonii, and the rare A. brevilabris.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, to which a Silver Flora Medal was awarded. It contained the chaste Lælia pumila alba, examples of Bulbophyllum grandiflorum, B. barbigerum, Ancistrochilus Thomsonianus, and a number of fine hybrids, among which we noted Odontioda Sensation var. roseum, a finely-grown plant with a panicle of 29 well-coloured flowers, Sophrocatlælia Ariadne, and several promising seedling Odontoglossums. Cattleya Dowiana aurea, Iris, iridescens, Parthenia, Claesiana alba, Saturn alba, and C. Acis Golden Fleece, Læliocattleya Maqueda, Lc. Geo. Woodhams, and other good things were also included.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a fine group, in which we noted a plant of Cœlogyne Veitchii, bearing three graceful racemes of pure white flowers, the rare Catasteum Russellianum, Stanhopea oculata with an eight-flowered raceme, Miltonia spectabilis Moreliana, and many good hybrids, these including Cattleya Æneas (Venus × Dowiana aurea), a handsome thing, with deep yellow sepals and petals, and a claret-crimson lip, veined with deep yellow in the throat, some good C. Dowiana aurea, C. Adula var. Vesuvius (Hardyana × bicolor), the sepals and petals apricot yellow flushed with rose, and the lip deep purple-crimson, Sophrocattleya Andromeda (S. grandiflora × C. Octave-Doin), rosy crimson, and the lip deep rose, with much yellow at the base, Sophrocatlælia Antiochus, Læliocattleya luminosa rosea, with rosy apex to the petals, Lc. bella, a fine Oncidioda Cybele, Odontoglossum Penelope (Rolfeæ × Olympia), most like the former, a few good Cypripediums, &c.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal for a good group, including Cattleya Thebes var. Britannic, with bronzy yellow sepals and petals and a dark crimson lip, three good forms of C. Adula, a dark Miltonia spectabilis Moreliana, Cypripedium Robin-Hood (bingleyense × Gaston-Bultel), a well-shaped flower most resembling the former in colour, a few good Læliocattleyas, Odontoglossums, and Cypripediums.

Messrs. Flory & Black, Slough, sent a good Brassocattleya Ilene, Læliocattleya Rajah, a C. Dowiana hybrid with rosy sepals and petals, and a well-coloured lip, the richly-coloured Sophrocattleya Faboris, and others.

Messrs. Hassall & Co., Southgate, sent a few good hybrids, including

Cattleya Regina (Dupreana × labiata), a fine thing, showing much of the C. labiata character, with three good forms of C. Adula and three of Brassocattleya Ilene.

Messrs. Stuart Low & Co., Jarvisbrook, sent a few good things, including Brassocattleya Lotos (C. Rex × Bc. Veitchii), with light yellow sepals and petals, and a paler lip with some rosy mottling, a pretty white Cattleya with yellow throat, from C. Dusseldorfii Undine × Warneri alba, another from C. Dowiana aurea × Thurgoodiana, with rosy sepals and petals, and a ruby-purple lip with paler throat, and a good Læliocattleya (C. Gaskelliana × Lc. Lustre), having broad lilac-coloured sepals and petals, and a crimson-purple lip with some yellow in the throat.

At the meeting held on September 25th there was again a good display of Orchids, and the awards consisted of four medals and two Awards of Merit.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), Arthur Dye, J. Wilson Potter, Sir Harry J. Veitch, W. Bolton, Walter Cobb, F. K. Sander, E. R. Ashton, T. Armstrong, R. A. Rolfe, J. E. Shill, H. G. Alexander, J. Charlesworth, and F. J. Hanbury.

Awards of Merit.

Brassocattleya Ilene The Bride (Bc. Maroniæ × C. Dowiana aurea).— A charming variety, having light blush pink sepals and petals, and a rather darker lip, with two large lemon-yellow blotches on the disc of the lip. Exhibited by Messrs. Hassall & Co.

Cattleya Iris Orchidhurst var. (bicolor × Dowiana aurea).—A handsome variety, the flower being of excellent shape, and the sepals and petals light yellow shaded with bronze, and the lip deep rosy mauve, with some yellow markings at the base. Exhibited by Messrs. Armstrong & Brown.

General Exhibits.

F. J. Hanbury, Esq., Brockhurst, East Grinstead, showed a flower of Cattleya Ariadne (labiata × dolosa), with a bright purple flower most like the former in shape.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Flora Medal for a fine group, in which showy Cattleyas and Læliocattleyas were particularly prominent, these including good forms of C. Venus, Fabia, illustris, Acis, Pittiana, Iris, Armstrongiæ, the white C. Clæsiana alba, C. Saturn alba, and C. Lady Veitch, Læliocattleya Maqueda saturata, very richly coloured, and others. We noted also a fine, home-raised Lælia pumila alba, Odontioda Zephyr, and a number of promising seedling Odontoglossums.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora

Medal for a showy group, including Brassocattleya Sofrano (Bc. Leemaniæ × C. iridiscens), a pretty primrose yellow hybrid, in which, however, the influence of the Cattleya could not be traced, Bc. Leemaniæ, Cattleya Sirius (Germania × Trianæ), a bright rose-purple hybrid with the three-lobed lip ruby-purple in front, good forms of C. Rhoda, Dionysius, Iris, Vesta, and others, Læliocattleya luminosa, Lc. Thyone, Lc. Mita (C. Fabia × Lc. Golden Oriole), a richly-coloured hybrid, good plants of Oncidium incurvum and var. album, Sophrocatlælia Laconia, Odontonia Langowoyi, and a number of good Odontoglossums.

Messrs. Hassall & Co., Southgate, also received a Silver Flora Medal for a group of showy hybrids raised in their establishment, and including Læliocattleya Zena (C. iridencens × Lc. Ophir) with golden yellow sepals and petals, and a three-lobed ruby lip with some yellow veining on the disc, good forms of Lc. Rhenus and Roumania, Sophrocattleya Faboris, Brassocattleya Ilene, and several good examples of Cattleya iridescens, Sybil, Regina, Adula, amabilis, and C. Hardyana alba.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal for an interesting group, including a good example of Odontonia McNabiana, Brassocatlælia Figaro, Cattleya Adula and Sybil, a good Odontoglossum eximium, Læliocattleya Priam and Gaston-Doin, Cypripedium Rajah, Royal Sovereign, and a few others.

Messrs. Flory & Black, Slough, staged a good form of Læliocattleya Soulange (Lc. Lustre × C. Dowiana alba), having rose-purple sepals and petals and a ruby-purple lip.

Messrs. J. & A. McBean, Cooksbridge, sent a good form of Odontonia brugensis, a very fine form of Cattleya Hardyana, and a good form of C. Fabia.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on September 6th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. D. A. Cowan, J. C. Cowan, J. Cypher, P. Foster, A. R. Handley, J. Howes, A. Keeling, D. McLeod, F. K. Sander, W. Shackleton, H. Thorp, and H. Arthur (Sec.).

FIRST-CLASS CERTIFICATE.

Cattleya Venus var. Princess Mary, a large, well-set flower of good colour, and with bright lip; from W. R. Lee, Esq.

AWARDS OF MERIT.

Cattleya Prince John var. Dorothy Sharp (Hardyana var. × Dowiana aurea), and C. Thebes var. Rev. J. Crombleholme (Adula × Dowiana aurea); from Messrs. Sanders.

Cattleya Sybil var. Reine de Saba; from R. Ashworth, Esq.

N.B.—The Odontoglossum exhibited at the last meeting by J. J. Bolton, Esq., and received an Award of Merit, should read O. Yula, not Zulu, as stated in the report.

CULTURAL CERTIFICATES.

To Mr. E. Rogers, for three first-class plants of Vanda cœrulea, each carrying two spikes of well-coloured flowers.

To Mr. C. Branch, for Odontoglossum crispum Etna, carrying three spikes; Cattleya Harrisoniana alba Stanley's var., with seven large flowers; and C. Venus var. Princess Mary.

SECOND-CLASS CULTURAL CERTIFCATES.

To Mr. Davenport, for Bulbophyllum barbigerum, and Masdevallia muscosa.

A Large Silver Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a very fine group, containing some choice Cattleyas, with Brassocattleya Anubis, Cypripedium Maudiæ, and other good things.

Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), and Messrs. Cypher & Sons, Cheltenham, for fine general groups, in which Cattleyas and Læliocattleyas were prominently represented, with other good things.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), sent a few splendidly-grown plants of Vanda cœrulea, with examples of Dendrobium formosum, Cœlogyne Mooreana, and the rare Cycnoches peruvianum.

At the meeting held on September 20th, the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, A. R. Handley, J. Howes, A. Keeling, D. McLeod, W. Shackleton, H. Thorp, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum xanthotes Nadine, a well-shaped flower, with distinct yellow markings, and O. President Poincaré, a round flower of good substance, and almost solid plum colour, with broad flat lip; from W. R. Lee, Esq.

Cattleya Doreen (Dowiana aurea × Pittiana), a well-balanced flower, the sepals and petals of a cream shade, with brilliant lip; from Mrs. S. Gratrix.

Sophrocattleya Faboris (Sc. Doris × C. Fabia), a large flower of brilliant colour; from S. Gratrix, Esq.

Læliocattleya G. G. Whitelegge magnifica, a large compact flower, of good colour, with a well-balanced lip; from J. J. Bolton, Esq.

Cattleya Venus The Knowle var., a large flower, of good shape and even colour; from John Hartley, Esq.

Sophrocatlælia The Belle (Scl. Marathon × C. Fabia), a fine variety, with well-set flower of pleasing colour; from P. Smith, Esq.

Cattleya Thora magnifica (C. Empress Frederick × Mrs. Pitt), a fine variety; from J. Walker, Esq.

AWARDS OF MERIT.

Brassocattleya Ilene The Knowle var. (Bc. Maronii × C. Dowiana aurea), and Odontoglossum Henry Thompson; from J. Hartley, Esq.

Odontoglossum amabile var. Royal George; from J. J. Bolton, Esq.

Cattleya Mrs. Pitt var. Leeana; from W. R. Lee, Esq.

FIRST-CLASS AWARD OF APPRECIATION.

Odontoglossum crispum var. Omar; from J. Walker, Esq.

A large Silver Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for an excellent group, containing a batch of Dendrobium Phalænopsis, and including the varieties Rothschildianum and album, with a good selection of Cattleyas, Cypripediums, and Odontoglossums.

A Silver Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a brilliant group of autumn-blooming Cattleyas, Læliocattleyas, and Cypripediums, in well-grown examples.

Interesting exhibits were staged by John Hartley, Esq., Morley (gr. Mr. Coupe); J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law); John Walker, Esq., Pendleton (gr. Mr. S. Weaver); Mrs. Gratrix, Whalley Range (gr. Mr. J. Howes); S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes), and P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson), several of which appear in the above list of Awards.

WANTED, AN ORCHID COLLECTOR.—The notice appears in our advertisement columns, and there is an old-world flavour about it that is interesting in these days of intensive hybridisation. But we believe that the race of Orchid collectors is not extinct, and they will be pleased to hear there is still a field for their energies. Fashions change, and there can be no doubt that the improvements effected by hybridisation have increased the popularity of this race of showy Orchids, and tended to push the species somewhat into the background. But there should be room for both, and there are so many quaint and interesting species which scarcely appeal to the hybridist that we should welcome a return to the old days in this respect. The trouble, perhaps, is that Orchids are so numerous that only in large collections is there room for the full development of both departments, and as Orchids are largely grown for their beauty the hybrids take the first place. It is to the collector, however, that we must look for an extension of our knowledge of this fascinating family, and many species are known to science that yet remain to be introduced to cultivation. And there are plenty of novelties yet to be discovered, especially if the collector

can break new ground, for Orchids are proverbially local. In order that opportunities to extend our knowledge may not be lost, we hope that the collector will be furnished with a press and a stock of drying paper, so as to be able to bring back samples of the plants that he finds. These should be localised, and the colour, and any other character that will not be shown by the dried specimen, noted on the ticket. They could then be forwarded to some suitable institution for study and report. Much yet remains to be done, and such a collection would increase the interest in the living plants. We hope that the collector, when secured, will not neglect his opportunities.

ORCHIDS IN SEASON.

AUTUMN-FLOWERING Orchids are now making a very brilliant display, particularly the Cattleya group, which every year receives a number of fine accessions from the hands of the hybridist. C. Dowiana and its hybrids probably occupy the first place in point of numbers, as this species has been linked up with almost every other that occupies any position in gardens, also with the Brazilian Lælias, Brassavola Digbyana, and Sophronitis grandiflora, and with their hybrid offspring in a way that is quite bewildering. C. Bowringiana and C. labiata have also yielded some brilliant acquisitions; in fact the three autumn-blooming Cattleyas mentioned have yielded a trio of hybrids in C. Fabia (labiata × Dowiana), C. Mantinii (Bowringiana × Dowiana), and C. Portia (Bowringiana × labiata), whose decorative value at this season can hardly be over-estimated, not to mention the way they are being utilised as stepping-stones for further improvements. The long-bulbed Cattleyas are also for the most part autumn-bloomers, and have contributed a number of useful hybrids, so that there is ample material to select from.

The Læliocattleyas are now a host in themselves, and produce a profusion of flowers right through the summer and autumn, in fact throughout the year; while the Brassocattleyas are scarcely less ubiquitous in their time of flowering.

The winter-blooming Cypripediums are just beginning their annual display, and from now until well after Christmas C. insigne and its derivatives will occupy a leading position in the Show house. Here, again, there is a bewildering variety, and the increase in the range of colours through continued hybridising and selection is being steadily increased. Apart from their decorative value at a dull season, they are seldom affected by fog, and thus are particularly good town plants, which alone is likely to secure their continued popularity.

ORCHID NOTES AND NEWS.

THE dates of the Royal Horticultural Society's October meetings at the London Scottish Drill Hall, Westminster, are the 9th and 23rd, but the first is a special Exhibition of Fruit, and the Orchid Committee will only meet on the latter date, the hour fixed being 11.45 a.m. The dates of the November meetings are the 6th and 20th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on October 4th and 18th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The date of the November meetings are the 1st and 15th.

The *Garden Magazine* for June, 1916, which we have just seen, contains (p. 301) a figure of a pure white Cattleya, called C. Princess Patricia (speciosissima Empress × Trianæ alba), which was offered for the Red Cross benefit by Mr. Clement Moore, Hackensack, New Jersey. This American monthly gives also (p. 302) a figure of what is called the green, fiddle-shaped Orchid (Cœlogyne pandurata), a plant exhibited in Messrs. Lager & Hurrell's group at the International Show held at New York, from April 5th to 12th, and which, it remarks, was a continual source of interest and curiosity to visitors.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

E.F.C.—We certainly think it is a form of Cattleya Olivia, for the influence of C. intermedia is unmistakable, but we can trace no characters of C. Leopoldii. The difference between the two crosses is fairly parallel with that which exists between Lælio-cattleya Schilleriana and Lc. elegans. The other crosses mentioned would not account for the characters.

T.I.—Possibly a form of Cypripedium plumptonense, for the characters of C. Spicerianum (probably coming through C. Leeanum) are well shown in the white dorsal sepal with reflexed sides, and the undulate petals, while the ivory white staminode is slightly modified in shape in the direction of C. insigne, though not in colour. Other seedlings out of the same batch would probably give a clearer idea of the actual parentage.

Beta.—A good typical form of Cattleya labiata, Lindl. Allelomorphic is a Mendelian term which expresses the quality in a character of being dominant.

J.S.—The name was originally given in a varietal sense, and objection was taken to its extension to another seedling that was inferior to the one certificated. A specific name, however, covers all seedlings of the same parentage, and no one can claim the exclusive right to it.

The Orchid Review

VOL. XXV. NOVEMBER-DECEMBER, 1917. No. 299-300.

OUR NOTE BOOK.

THE progress that is being made in hybridisation is frequently illustrated at our horticultural meetings, but occasionally some outstanding subject appears, as was the case at the R.H.S. meeting held on November 20th, when a brilliant Brassocatlælia was exhibited by Messrs. Armstrong & Brown, under the name of Lady Manningham Buller, to which both a First-class Certificate and a Silver-gilt Lindley Medal were awarded. It is the result of intercrossing Brassocattleya Veitchii Queen Alexandra (Cattleya Mossiæ Wageneri × Brassavola Digbyana) and Læliocattleya Ophir (Lælia xanthina × C. Dowiana aurea), and the flower is of excellent shape and substance, with a very undulate and somewhat fringed margin to the lip, while the colour may be described as bright canary yellow, rather darker on the centre of the lip. This particular colour has long been a desideratum in the group, owing to the well-known tendency of Cattleya Dowiana to produce purple hybrids. Lælia xanthina, however, has proved a useful corrective, and if the colour can be handed on to the next generation, as in the present case, it should increase the value of the Lælia as a parent. The raisers must be congratulated on their brilliant acquisition.

In shape and substance the character of the Brassavola is most apparent, but the influence of the two Cattleyas is seen in the broadened petals, and the greatly reduced fringe of the lip, in which latter character the influence of the Lælia would also operate. If only the fringe could be recovered, a very remarkable flower would be the result, and for this nothing but re-crossing with the Brassavola would suffice. The other characters are so good that we think the cross might be attempted with good hopes of success. The fringed character on both sides of the ancestry should make itself felt, and there is not the same reason to fear a weak, washy result as in the case of re-crossing the Brassavola with a purple Brassocattleya. A probable narrowing of the petals would be more than counterbalanced by a return of the fringe with a retention of the yellow colour, and both results are within the range of possibility

---

It is curious to reflect that the cross might be attempted in two other ways, namely, by uniting Brassolælia Jessopii with Cattleya Empress-Frederick, or Brassocattleya Leemaniæ with Læliocattleya Norba, at all events if the hybrids could be found in which C. Mossiæ is replaced by its albino variety, Wageneri, for the presence of purple derived from typical C. Mossiæ might affect the result. We do not remember a case quite comparable, for in that of the beautiful Brassocatlælia The Baroness, also descended from Læliocattleya Ophir, Cattleya Dowiana was twice represented, and there were some crimson markings on the lip. But there was a similar yellow ground colour, which says much for the influence of Lælia xanthina as an agent in the production of yellow hybrids.

A word may be added about the name. It is unlikely that other seedlings from the same parentage will prove identical, in which case the question of varietal names will arise, as in some former cases that we have in mind. One was a certificated plant, and when the name was extended to another seedling of identical parentage, but not equal in quality, a protest was made, and we then found that the name was only given in a varietal, or florist's sense, and was not intended to apply to all seedlings of identical parentage. In short, a specific name had not been given. Should a similar difficulty arise in the present case it could be met by calling the plant Brassocatlælia Ophir var. Lady Manningham Buller, and this, we suggest, should be done. It is the specific name that is common to all seedlings of identical parentage, and this should always be in a form that permits of the addition of any necessary varietal names smoothly and euphoniously; the varietal name cannot be thus appropriated.

Some interesting remarks relating to Mendelism appears in the introduction to a recent paper in the *Journal of Genetics*, by Mr. R. N. Nabours. "Most, if not all Mendelians," he remarks, "consider the proof of the segregation of the germ plasm as an insulated substance in embryonic development adequate. It is considered a fundamental principle that the units contributed by two parents separate in the germ cells of the offspring without having had any influence on each other. . . . There is much confusion regarding the use of the terms dominant and recessive, the interpretation and application of ratios, and the definition, or determination, of characters. The terms dominant and recessive remain part of the nomenclature, as if they were realities, whereas they can have doubtful application only in crosses between characters allelomorphic to each other in which one character is more apparent (epistatic) and the other less apparent (hypostatic); or, in the case of characters which are allelomorphic only to their absences, a character being considered dominant

and its absence recessive. Part of the confusion in this matter has undoubtedly resulted . . . from the failure to recognise the distinction between the two classes of characters. The 9 : 3 : 3 : 1 and 3 : 1 ratios are used freely and with assurance, whereas there are really no such ratios. There appears to be a lack, in usage at least, of appreciation of the distinction between characters which are allelomorphic to each other, *never to an absence*, and those characters which are allelomorphic only to their absence, *never to each other or any other characters*, and which exist only in relation with, and in addition to, characters allelomorphic to each other."

The title is "Studies of inheritance and evolution in Orthoptera"; had it been Orchids we might have been able to follow the paper further with profit, but the remarks are significant, and suggest the necessity of a nomenclature more in accordance with the facts. When a character is allelomorphic to its absence (whatever that may mean) it is a nice question whether it is allelomorphic at all, and a Mendelian pair that is built up on the same principles may be only a single one. It may yet be discovered that Mendel himself was under no such illusions about the fundamental principle of the separation of the units, for he spoke of characters *entirely and permanently accommodated together* (the italics are his), and he added: "For the history of the evolution of plants this circumstance is of special importance, since constant hybrids acquire the status of new species."

It would be interesting to know what Mendel would have thought of the recent claim that new species only arise by crossing, a proposition that is altogether against the weight of evidence. For our part, we doubt whether Mendelian research has yet produced any direct evidence as to the way that species originate in nature.

AERIDES HYBRIDUM.—At page 208 you mention a notice of this plant in the 6th edition of *Williams' Orchid Grower's Manual*, under the name of A. Dominianum. I have a copy of the 5th edition (1877). On page 66 he gives the following: "A. Dominianum.—A garden hybrid, having flowers the colour of those of A. Fieldingii, with the markings and shape of A. affine. It is very rare at present. One of the most beautiful varieties which are enriching our collections as the result of hybridising. It is the produce of a cross between A. Fieldingii and A. affine, producing rich rose-coloured flowers." I do not know whether this account differs, but it may be of interest as of earlier date.—BARTLE GRANT, Wilmington House, Dartford, Kent.

[Substantially different. We are afraid the plant has been lost.—ED.]

ORCHIDS AT DARJEELING.

AFTER spending just on twelve months on the plains of India, we were sent to Jalapahar, a station about one and a-half miles from Darjeeling, a nice cool change from Allahabad. To one who is interested in the subject, the district, which is between seven and eight thousand feet elevation, proved to be very attractive, a number of Orchids being noted.

Pleiones occupy the foremost position, and to see them in full bloom among the rocks was indeed a treat. The principal one in flower was P. præcox. I have searched diligently for a white variety, so far without success, but I see in the *O.R.* that there is a white variety at Kew. Satyrium nepalense has pretty pink flowers, and is very showy in a mass, and the same remark applies to Anthogonium gracile, with its white variety alba. Spiranthes australis is another pretty little plant.

Most of the European bungalows in and around Darjeeling have their quota of Orchids, and at present Dendrobium chryanthum and D. Hookerianum are furnishing a fine display. Cœlogyne cristata is a great favourite, and is grown in quantity.

Recently I paid a visit to Mr. P. T. Russell at Mungpu. He is Superintendent of the Government Cinchona Plantations, and he possesses quite a unique collection of Orchids. On my way through the jungle I saw a number of Orchids, but very few were in bloom. Cymbidium elegans, however, was an exception, and made quite a show on its own account; but the gem was Arundina bambusæfolia, which was growing by the side of streams, and was some ten feet high, and blooming profusely. In the Lloyd Botanic Gardens, Darjeeling, where Mr. Cave is Curator, will be found a collection of choice and rare plants.

Another unique collection can be seen with Messrs. G. Ghose & Co., collectors and exporters, Townend, Darjeeling. Many of the plants are attached to trees on the hill side, and others are grown in greenhouses, where very little fire heat is used. A large number of genera are represented, but many are of botanical interest only. Among the showy kinds are the Cypripediums, such as C. Charlesworthii, C. venustum, and C. Fairrieanum which is in the rudest health. They are grown cool, and Mr. Ghose told me that the temperature often falls to 38° Fahr., and a moderate quantity of drainage is incorporated with the loam and fibre.

A few of the plants noted were Calanthe Masuca, with its violet flowers, the ochraceous yellow C. biloba, and C. herbacea, of which I enclose a photograph. It is found in Sikkim, from four to six thousand feet elevation, and is closely allied to C. chloroleuca. The sepals and petals are greenish, and the lip is pure white, except its callus, which is yellow-

It is quite a good species, and worthy of cultivation. Bulbophyllums are largely represented in the collection, B. cylindraceum having six spikes of its almost black flowers. B. penicillium is a remarkable species with uniform brown flowers, the extremely mobile lip responding to the slightest movement of the air. B. hymenanthum, Mr. Ghose tells me, is very rare: the sepals and petals are yellowish streaked with purple, the lip being purple. Ritaia is a quaint genus, resembling Appendicula in general habit, and was represented by a healthy specimen of R. himalaica.

Dendrobium ramosum, with which, I believe, D. Ruckeri is synonymous, was noted, also Phalænopsis Mannii, with its yellow-brown flowers, P. Parishii, the quaint Luisia volucris, and Doritis tænialis [now known as Kingiella tænialis (see p. 197).—Ed.], which is near to the genus Phalænopsis. The plant was in bloom a few weeks ago, and Mr. Ghose fertilised it with Phalænopsis Mannii, a fine healthy pod being the result. Goodyera hispida was attractive, with its green foliage flushed with pink towards the edges, and beautifully reticulated with pure white. Of this also I send a small photograph.

The Goodyeras, Anœctochilus, and their allies are highly prized at Darjeeling, and A. sikkimensis is a beautiful plant, the dark red foliage being veined with golden yellow, and the whole presenting a nice velvety sheen. Zenzine goodyeroides, Pogonia plicata, and Nephelaphyllum pulchrum var. sikkimense belong to the same category. Cymbidiums are largely grown, and there are huge specimens of C. giganteum, C. grandiflorum, and C. elegans, which latter had twenty spikes of its pale yellowish flowers. C. Devonianum was also in splendid condition.

New or rare species are being continually added to the collection, Mr. Ghose having collectors in Sikkim, Nepal, and Bhutan, and correspondents in the Naga hills and Shan States of Burma.

Satyrium nepalense I collected on Katapahar, at 8000 feet elevation, and two miles or so from Darjeeling. A few of the spikes were photographed, and it will give some idea of what it is like. It is known around here as S. sikkimense, but I think it is a variety of S. nepalense.

It will be interesting to record that an Orchid Society in about to be formed at Darjeeling.

T. W. Briscoe.

Fort Allahabad, India.

[We thank our old friend, Mr. Briscoe, for his interesting communication, which serves to remind us how widely diffused is the interest in this beautiful family, and how diverse the kinds grown. The Calanthe photograph represents a quite attractive plant, but we are afraid its reproduction must wait for more propitious times. A copy of the Catalogue of Messrs. Ghose & Co. is enclosed, and contains a very interesting collection. We wish the new Society success, and hope to hear of its doings.—Ed.]

THE ORCHID REVIEW.

AFTER Lindley, Reichenbach—we have summarised both periods (pp. 75-79; 219-224) covering an aggregate of over sixty years. The third period is separated by an act which the *Gardeners' Chronicle* at the time well described as an ungenerous attempt to paralyse the study of Orchids in this country. "It would be affectation," it remarked, "to pretend that we do not receive the announcement we have to make with chagrin and sorrow. The future task of Orchidists in this country is by this action rendered peculiarly laborious and perplexing."

A correspondent of *The Garden*, "W.H.G.," under the heading, "A successor to Professor Reichenbach," wrote: "I regret much the cause which has led English Orchidists to be wiped out of all participation in our late Professor's Herbarium. We want a successor, and who is it to be? In the first place we want a man who has a good knowledge of Orchids, and what has been done with Orchids for some time past, and he must have a good knowledge of the Latin language, in order that he may be saved from the horrible names that appear to be becoming the fashion. He should reside in London, in order that he may be in a central position, and he must be no partisan, but be equally ready to work for everyone alike. I think this is a good opportunity for the R.H.S. If the Society either cannot or will not help, then Orchid growers should form themselves into a Society and make the best Orchid man they can find their life-president." The Editor added, among some remarks that were not particularly complimentary to Orchidists: "In past days able botanists were glad to help the society, as no doubt they will be in the future."

Before the provisions of Reichenbach's Will were known a proposal had been made to commemorate his work, and a fund was being opened, but the movement dropped when it was found that the eccentric author had erected his own memorial. It was natural enough, but it left the future of the work totally unprovided for. Kew volunteered assistance in the matter of species, but there remained the question of horticultural varieties and hybrids, which were so rapidly coming to the front. How far Reichenbach attained his object cannot yet be judged, for many of his species still remain unidentified. And as soon as the twenty-five years closure had elapsed, and the Herbarium was opened, and about to be prepared for study (see *O.R.*, xxii. p. 206), a disastrous war broke out, which has postponed the event indefinitely. The work, however, was not allowed to drop, and after an interval of over three years the *Orchid Review* was founded. A quarter of a century is a long time, and much has since happened, which we will leave

others to assess. The following, however, appeared in the *Gardeners' Chronicle* on the completion of the tenth volume :—

After alluding to the work achieved, it proceeded : "Many lovers of these plants will remember the consternation caused by the death of Professor Reichenbach, who took up Lindley's work. . . . Many, too, will remember the disgust universally felt at the Professor's testamentary dispositions. For a time it was feared that the progress of Orchid knowledge would be seriously affected by the locking up for twenty-five years of the specimens and materials amassed by the Professor. But somehow, as in the case of the Ingoldsby legends, no one appears to be one penny the worse for the strange dispositions of the Hamburg Professor. One reason for this fortunate state of things may fairly be attributed to the *Orchid Review*. Month after month Orchidists have had placed before them the newest and most trustworthy information concerning Orchids. Difficult and entangled questions relating to nomenclature and synonymy have received attention. The raising of hybrids has also been carried on to an extraordinary extent, and but for the *Review*, the confusion, great as it is, would have been much greater. The specialisation and division of labour, which is so marked a feature of the times, necessarily bring with them the need for a special journal. Specialisation in botany is, however, as in everything else, only advantageous when it has been obtained beforehand. It is needless to say that this requisite has been fully attained in the *Orchid Review*, which has thus secured the confidence of Orchid growers, and will, we trust, long retain it."

And, now? For a period, not of ten, but of twenty-five years, the *Review* has striven to uphold the honour of British Orchidology, and in the end it is threatened with extinction. The cost of printing, paper, and of everything that goes to the production of such a journal, has nearly doubled, and is still soaring, while other connected circumstances have limited the circulation. And there are paper and other restrictions that have to be observed. For example, the *Review* can only be sent to America, and neutral countries, under a permit, and all packages have to be accompanied by a certificate giving the name and address of every person to whom a copy is sent. Many journals have collapsed : the *Review* has been saved by an abiding faith in the future. but we cannot longer bear the burden alone. We know that the work is widely appreciated ; of that we have been assured over and over again, and it circulates wherever Orchids are grown. A little help is needed to assure its future.

The work was established to overcome a difficulty for which no other remedy could be found, and a quarter of a century is a long period. It has stimulated and supported an industry from which hundreds of people derive pleasure and profit, and one that cannot be laid aside in a moment

and resumed when more propitious times return. It is not a matter of a season's growth. There are still thousands of seedlings raised before the war that have not yet flowered. The plants must be cared for : the industry must be kept alive, and its special journal should not be allowed to collapse

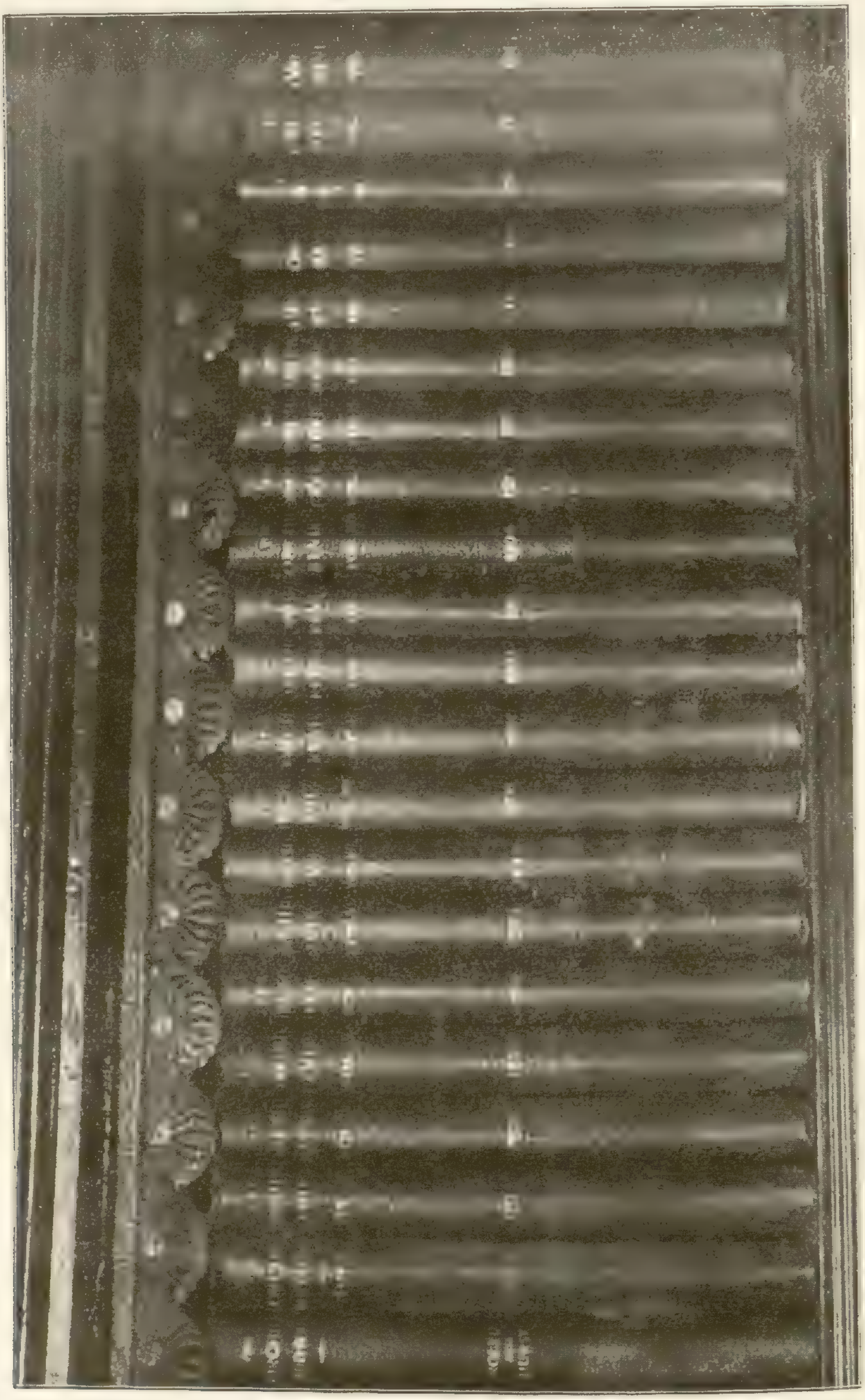

Fig. 28. The Orchid Review and Orchid Stud-Book.

for want of a little support. We feel that the work cannot be given up, and if our readers take the same view we have no doubt of the result. There we must leave the matter for the present.

The accompanying illustration may be interesting in this connection. It represents the first twenty volumes of the *Orchid Review* (we cannot show

the complete set), with the accompanying *Orchid Stud-Book* on the left. Similar sets may be found on many library shelves, and they may be said to contain the history of Orchid culture for the last quarter of a century, with innumerable records from the past. What is now wanted is a general index to the whole. The matter had been largely selected when a disastrous war broke out, and the arrangements had to be postponed, but when normal times return we aim at including the twenty-five volumes, and trust that the necessary support will be forthcoming.

CALANTHE VEITCHII.

WE have previously mentioned the interesting "lecturets" that used to be given at the meetings of the R.H.S. by Mr. James Bateman, and of his curious aversion to hybrids. Both points are illustrated in the following, which is taken from an address given on November 21st, 1865 (*Gard. Chron.*, 1865, p. 1109) :—

"In reference to the charming Calanthe Veitchii, which, it may be recollected, is a hybrid between Limatodes rosea and Calanthe vestita, Mr. Bateman said that he hoped that Orchids constituted a royal race into whose preserves the hybridist would not dare to enter, and that much as he appreciated his labours in other departments of Flora's dominion, he nevertheless felt a kind of inward satisfaction whenever failure attended his attempts to raise cross-bred Orchids. In the case before him, however, he was forced to admit, though it nearly choked him to do so, that a magnificent result had been obtained, inasmuch as the hybrid in question was certainly one of the finest winter-blooming Orchids in cultivation, a fact which all who had the good fortune to see Mr. Rucker's glass-houses at the present time would confirm, for they are said to be quite gay with the rich rosy flowers of the Calanthe Veitchii."

By a fortunate coincidence we find that an account of Mr. Rucker's fine collection at Wandsworth had appeared some months earlier, where the following note on this Calanthe is given (p. 55) :—

"At this dull season, when flowers are everywhere scarce, the display made by the charming Calanthe Veitchii, in one of Mr. Rucker's Orchid-houses, is well worth travelling miles to see. This glorious plant, a hybrid raised at Mr. Veitch's Exeter Nursery, between Limatodes rosea and Calanthe vestita greatly surpasses both parents in grandeur of appearance, having a constitution even more robust than that of the Calanthe, and a colour much brighter than that of the Limatodes. Had Mr. Dominy raised no other seedling Orchid than this, he would have been entitled to the best thanks."

OBITUARY.

OSWALD OSMOND WRIGLEY.—We deeply regret to record the death of Mr. O. O. Wrigley, Bridge Hall, Bury, which took place on November 11th, at the age of 81 years. Mr. Wrigley has been an enthusiastic amateur of Orchids for a period of fifty-five years. He began to grow Orchids in 1862, the year he was married, when he purchased fifty Orchids at £1 each. He at once began to study their requirements, and soon found that all could not be grown together, and the next step was to provide the different houses necessary. He took a keen personal interest in all cultural details, and never gave up a species until he succeeded in growing it well or in satisfying himself that it was unsuitable for the district. Cypripediums have long been among his chief favourites, and for the last twenty years he has purchased most of the best that could be had. besides raising a large number of seedlings, annually weeding out those that did not come up to his standard. At the present these plants occupy six houses, besides which there are two houses of Odontoglossums, one of Cattleyas and allies, one of Lycastes, one of Cymbidiums, and one of Epidendrum vitellinum and Odontoglossum grande, the remaining three being devoted to miscellaneous warm-growing species, including some very fine Phalænopsis amabilis Rimestadiana, deciduous Calanthes, Dendrobium Phalænopsis, and numerous miscellaneous subjects. Mr. Wrigley was one of the original founders of the Manchester Orchid Society, and the excellence of the groups staged by him at its meetings has often been remarked. The health and vigour of the plants has also impressed us on the two or three occasions that we have had the pleasure of seeing the collection. We may also recall the noble specimen of Anguloa Clowesii exhibited by Mr. Wrigley at a meeting of the Royal Botanic and Horticultural Society of Manchester, in June, 1878, to which a Veitch Memorial Medal was awarded. It was one of a group of sixteen Orchids which gained the first prize, and was described as fully three feet across the base, and bearing nearly fifty of its rich golden cups, and a crown of perfectly-developed leaves—a picture of health and freshness, and magnificently bloomed. It had been grown on from one or two bulbs, and was not made up in any way.

Mr. Wrigley was for years one of our most constant correspondents, and the flowers and photographs received from him have been both numerous and beautiful, and some of them have been illustrated in our pages, among which we may mention the fine group of Cypripedium Fairrieanum figured at page 9 of our eighteenth volume, and of Dendrobium Phalænopsis used as the Frontispiece of the succeeding one His name is

commemorated in Læliocattleya Wrigleyi (C. Bowringiana × L. anceps), which is also figured (*O.R.*, viii. p. 145, fig. 24), and Cypripedium Wrigleyi (villosum × Charlesworthii). It will be remembered that our last volume was dedicated to Mr. Wrigley.

Space would fail us to mention Mr. Wrigley's numerous benefactions to the institutions of Bury, but there is a long and interesting account in the *Bury Times* of October 13th, from which we learn that he was Bury's earliest freeman, and that he had been a magistrate of the Bury County Division for upwards of thirty years. Mr. Wrigley, who has been a widower for some years, leaves a son and two daughters to mourn his loss. We are indebted to Miss Constance Wrigley, and to Mr. Rogers, who has long had charge of the collection, for some of the above facts. The collection is to be disposed of at some future date.

Elijah Asworth.—This well-known and highly-respected Orchidist passed away at his residence, Harefield Hall, Wilmslow, on October 18th, in his 77th year. The Harefield Hall collection has long been famous in the Manchester district, for Mr. Ashworth was an enthusiastic cultivator, and gained many medals and certificates at the Manchester Shows. He was also an occasional exhibitor in London, and has been a member of the Orchid Committee of the Royal Horticultural Society for the last eighteen years. He was Chairman of the Manchester Orchid Society from 1906 to 1911. Some eight or nine houses were devoted to Orchids, and the plants were well grown, as we have had the pleasure of seeing on more than one occasion. Perhaps the most famous Orchid in the collection was the fine Harefield Hall variety of Cypripedium insigne, but other varieties of well-known species could be mentioned, and among them the silver-white Lælia Jongheana Ashworthii, Cattleya labiata elegans and Mrs. E. Ashworth, two beautiful whites, with a purple blotch on the front of the lip, and the blotched Odontoglossum crispum Ashworthianum, each of the three latter having received a First-class Certificate from the R.H.S. Plants of the rare Trevoria Chloris may also be mentioned, and we were much interested to see, in the Odontoglossum house, the violet-blue Dendrobium Victoria-Regina and the pretty little Epidendrum Endresii, both blooming freely. Mr. Ashworth was also interested in hybridisation, and a house of seedling Cypripediums was an object of interest at one of our visits; also a batch of Cattleya Schrœderæ alba × amethystoglossa alba. Among the hybrids raised may be mentioned the fine Dendrobium Arthur-Ashworth, derived from D. Brymerianum and D. pulchellum. Mr. Ashworth's name is commemorated in Cypripedium Ashworthii, a hybrid raised by Messrs. Sander from C. Measuresianum and C. Spicerianum. Accounts of the collection, which, we understand, is to be sold, will be found in our earlier volumes (viii. pp. 181-182; xviii. pp. 282-284).

William Marshall, V.M.H.—This veteran horticulturist passed away at his residence, Auchinraith, Bexley, on November 11th, a few days short of his eighty-second birthday. Although best known to the recent generation as a florist, and Chairman of the R.H.S. Floral Committee for upwards of a quarter of a century, Mr. Marshall was in his earlier days a keen Orchidist,

Fig. 29. The late Mr. William Marshall, V.M.H.

and it was in his collection at Enfield that the beautiful Odontoglossum crispum flowered for the first time in cultivation, the plant receiving a First-class Certificate from the R.H.S. on April 18th, 1865. "The achievement of producing the first flower of this most popular Orchid," remarks the *Gardeners' Chronicle*, "always stood out as one of the proudest in his career. He was particularly fond of a button-hole flower, and the 'white crispum' was always the favourite." This predilection is shown in

the annexed portrait, for which we are indebted to the courtesy of the Editor of the journal just mentioned. It was soon after his marriage, in 1859, and that Mr. Marshall began to cultivate Orchids, and for many years he was a successful exhibitor at South Kensington, Regents Park, and the Crystal Palace. At the famous International Exhibition, held in 1866, he gained the second prize for the best ten Orchids, and two years later he was awarded a Lindley Medal for the excellence of a group of between fifty and sixty Cattleya Trianæ. The Medal, however, it is on record, was never received. In those days East Indian Orchids were much in favour, and with these Mr. Marshall was also very successful. His numerous other activities are mentioned in an appreciative Obituary notice in the *Gardeners' Chronicle*, where it is remarked that he was a draughtsman of no mean order, and made many delightful sketches of insects and Orchids. In 1906, he received the Victoria Medal of Horticulture, and three years later the Gold Medal of the Veitch Memorial Trust. It was the formation in March, 1889, of an Orchid Committee by the R.H.S. at first nominally as a section of the Floral Committee: that severed Mr. Marshall's official connection with Orchids, for at the meeting of the latter body, held on March 12th, we find that First-class Certificates were awarded to Cymbidium eburneo-Lowianum and Cypripedium Rothschildianum, under Mr. Marshall's Chairmanship, but a fortnight later, when the Orchidists sat as a separate body, Mr. Marshall retained his old position. Mr. Marshall's name is commemorated in Oncidium Marshallianum, dedicated to him as long ago as 1866, and Thunia Marshalliana, given eleven years later.

An interesting note has since appeared from Mr. W. Wilson, East Dene Gardens, Bonchurch, whose father had charge of Mr. Marshall's collections, and who was elected a member of the R.H.S. Floral Committee in 1872. He remarks: "I have by me all the certificates and prize cards won by these collections, which number nearly 400. They include ten Gold and four Silver Medals, and 45 R.H.S. Certificates, which will show to what extent Mr. Marshall cultivated Orchids.

ODONTOGLOSSUM CRISPUM.

AN incident related at p. 252 serves to recall the early history of this popular Odontoglossum, which was long known under the name of O. Alexandræ. The plant mentioned as flowering for the first time in cultivation in April, 1865, in the collection of Mr. W. Marshall, was exhibited under the name of O. Bluntii, and this was stated by Dr. Reichenbach, who was present, to be quite distinct from O. Alexandræ (*Gard. Chron.*, 1865, p. 566).

In November following, a glorious example of O. Alexandræ was shown by Messrs. Hugh Low & Co., of Clapton, and we read: "This new Odontoglot is one of Mr. Weir's contributions from Santa Fè de Bogota, and as it is eminently beautiful, and sure to be a favourite, Mr. Bateman did not scruple to dedicate it to the illustrious Princess whose name it bears (see 1864, p. 1083). Messrs. Low's traveller, Mr. Blunt, was, however, at work in the same country, and a specimen of this plant sent home by him, being submitted to Professor Reichenbach, was considered by that botanist to be sufficiently distinct from Mr. Bateman's O. Alexandræ to merit another name. He, therefore, called his new Odontoglot O. Bluntii. Examples of both were shown in flower on Tuesday, and although O. Bluntii was much handsomer than that to which the name O. Alexandræ was attached, it was the opinion of some persons present that the two were varieties of the same species (*l.c.*, p. 1109). This note elicited the history of the two plants, as follows:—

Odontoglossum Alexandræ.—In your report of the meeting of the Horticultural Society (p. 1109), it is stated that Mr. Blunt sent home a specimen of an Odontoglossum, which was considered by Prof. Reichenbach to be distinct from O. Alexandræ, and that examples of both were shown in flower at that meeting, the one called O. Bluntii being much the handsomer of the two. A flower of each of the two plants in question was sent to me by Mr. Bateman, and I beg to be allowed to state that specimens of both varieties were gathered by me before Mr. Blunt saw either of them; and, moreover, that the very specimen sent home by Mr. Blunt was given to him by me. The true history of the plant is as follows: While at Pacho, about the end of May last year, looking for O. crispum, I discovered this species, and returned to Bogota with plants and flowers in the month of June. There I met Mr. Blunt, who saw the flowers, and being much struck with their beauty, he asked me to give him some, which I did, taking them at random from the specimens I had dried. These flowers, sent home to his employers, were no doubt the origin of O. Bluntii. I at the same time sent home plants and specimens, and wrote to the Royal Horticultural Society, giving a short description of the plant, and distinctly stating that it varied much in size, colouring, and form of the flowers, and especially that some were more crisp and much more spotted than others. In the month of July I returned to Pacho to collect more plants, and as Mr. Blunt was anxious to obtain some of the same kind, he accompanied me. We collected a large number of plants, many of them in flower, and varying as much and even more than the two varieties shown at South Kensington. I dried a number of spikes of the beautiful flowers, some of which I afterwards gave to Mr. Blunt, as he did not dry any himself. However varied, therefore, the flowers of individual plants may be, I claim to be the sole

discoverer of this beautiful species, and must protest against its bearing any other name than that given to it by Mr. Bateman.—John Weir.

The controversy continued for some time, and Reichenbach remarked (*Gard. Chron.*, 1866, p. 8): "For my part I believe there are two species, and mules, too, between them. . . . Mr. Weir seems not to have thought of hybrids." Finally, in 1873, we find a painting by Mr. Day (*Orch. Draw.*, xvii. t. 32), with the remark: "A suburb variety of this variable but always lovely species, which is now acknowledged by botanists to be old O. crispum, thus extinguishing the rival claims to be called Bluntii or Alexandræ." It would thus appear that even so desirable an acquisition as O. crispum was not recognised when it first appeared in cultivation.

Vanilla imperialis, Kränzl.—A fine species of Vanilla from Uganda has been known for some time from dried specimens, and about a year ago a living piece was sent to Kew by the Uganda Department of Agriculture. It has now flowered, and proves indistinguishable from V. imperialis, Kränzl., a species described in 1876 from the Cameroons (*Notizbl. K. Gart. Berl.*, i. p. 155, t. 1). The flowers were compared with those of Cattleya Dowiana, and were described as golden yellow, with dark purple veining on the front of the lip. It was said to be near the West African V. grandifolia, Lindl., a species still imperfectly known, but which is readily distinguished from V. imperialis by its much smaller bracts. The dried specimens above mentioned are, a fine fruiting piece from the Mabiri forest, collected by C. B. Ussher in 1908; inflorescences and flowers from the Umyoro district, by M. T. Dawe in 1910, and a fine specimen from Fort Bayo, at 4000 feet elevation, by R. Dümmer. A comparison of the series leaves no doubt of their identity, and it is interesting to find another western species extending across as far as Uganda, for the fine Angræcum infundibulare, Lindl., has a similar distribution. Vanilla imperialis is a striking plant, with stout scandent stems, elliptical-orbicular, sessile, very fleshy leaves, six to nine inches long by four to five broad, axillary spikes with closely imbricating bracts, about an inch long, and large fleshy flowers, with yellow sepals and petals, over two inches long, and a dark purple lip with some light yellow veining, somewhat resembling Cattleya Dowiana in colour, with the typical Vanilla structure. They remain open for about five days. It is a very striking species.—R.A.R.

An abnormal Cattleya is sent from the collection of R. W. Rickards, Esq., Usk Priory, Monmouthshire. The petals are exceptionally broad, and one of them is completely confluent with the lip, which thus occupies a lateral position. It is probably a mere accidental occurrence.

CATTLEYA ASTRON THE DELL VARIETY.

THE annexed figure represents the chaste and beautiful Cattleya Astron The Dell variety (C. Dusseldorfii Undine × Loddigesii alba), to which a First-class Certificate was awarded at the R.H.S. meeting held on

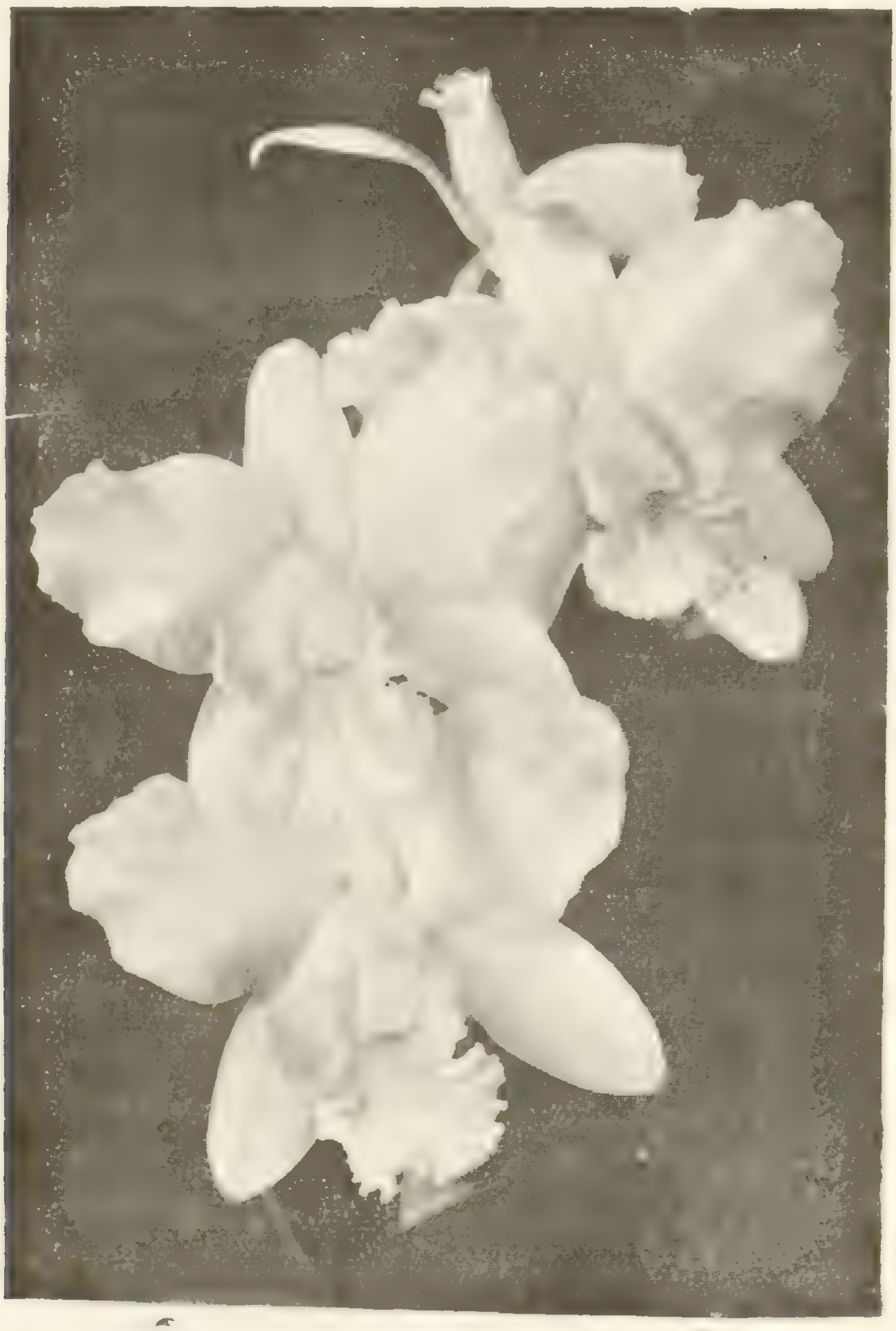

Fig. 30. CATTLEYA ASTRON THE DELL VAR.

November 6th last, when exhibited by Mr. J. E. Shill, gardener to Baron Bruno Schröder, The Dell, Englefield Green. Cattleya Astron was raised in the collection, and was originally exhibited in August, 1914, receiving an Award of Merit in the following December. It comes of entirely white ancestry, C. Dusseldorfii Undine being from C. intermedia alba × C. Mossiæ Wageneri, while C. Loddigesii alba is probably the best white of its group. It received a First-class Certificate from the R.H.S. in

September, 1908, under the name of C. Harrisoniana alba Stanley's var., but afterwards proved to be the white form of C. Loddigesii (see *O.R.*, xxi. p. 331). The Dell variety of C. Astron is the best of the batch that has yet flowered, and when exhibited it carried a spike of six blooms, as shown in the annexed figure, for which we are indebted to the courtesy of the Editor of *The Garden*. C. Astron most resembles C. Loddigesii alba in general character, as might be expected, for C. intermedia alba is a very near ally, though the influence of C. Mossiæ Wageneri may be seen in the shape of the petals. It is a beautiful addition to the group. It may be added that on November 20th another plant of this hybrid, bearing a ten-flowered spike, received a Cultural Commendation.

CALENDAR OF OPERATIONS FOR DECEMBER.

By J. T. Barker, The West Hill Gardens, Hessle, E. Yorks.

[We have been compelled by the abnormal conditions of the time to combine the November and December Calendars; the treatment required during these two months, however, is substantially identical.—Ed.].

THE present period is generally considered to be the most difficult in the whole year for plants grown under artificial conditions. The short, and often dull days are not conducive to the welfare of the plants, and should changes in the outside temperatures follow each other in quick succession the results may well be disastrous to tender Orchids. Fluctuations of temperature in the houses should be avoided as much as possible, and extremes of either heat or cold are injurious.

The winter treatment of the plants must now receive strict attention as regards heat, light, and moisture, the first-named largely depending upon the proper use of the heating apparatus, combined with the admission of fresh air on all favourable occasions. Absence of fresh air makes the houses feel stuffy and unhealthy, so that a judicious use of the ventilators is important. They should be opened on the lee side as much as possible, so as to avoid cold draughts. Light can only be secured at this time of year by keeping the glass as clean as possible.

Moisture must now be used with caution, both in the atmosphere and to the compost. Damping down depends largely upon the amount of heat required in the pipes to maintain the temperatures, and is hardly required during a spell of mild weather. The compost also remains moist for a long time, except in the case of plants that are growing actively. Sufficient moisture must be given in all departments to check the rapid increase of insect pests, such as thrip and red spider, which may quickly disfigure or destroy the foliage.

Cattleyas, Læliocattleyas, and their allies are more appreciated at

this season than at any other, and the number of fine autumn-blooming hybrids is steadily increasing, so that no difficulty is likely to be found in maintaining a display of their beautiful flowers. The remarks previously made regarding their culture should be closely followed during the present month, and any that are in need of new material may still be taken in hand, the new compost being afterwards kept on the dry side.

Sophrocattleyas, and other hybrids derived from intercrossing Sophronitis grandiflora with allied genera, may be treated like Lælio-cattleyas. Some individual plants may require special treatment during this sunless time of year, and the smaller ones should be stood well up to the light.

Mexican Lælias.—These like more light than the Cattleyas, especially when making their growths, and delight in fresh air whenever possible to admit it. The early varieties will now be opening their flowers; others are much later, and by judiciously manipulating them the blooming period may be considerably extended. L. autumnalis and its chaste variety alba, with L. albida and L. furfuracea, will also be in bloom. These like to be kept slightly cooler while making their growth, also the refractory L. majalis, which does best when suspended in a light position. When flowering is over, give the plants a good rest, allowing only enough water to keep the pseudobulbs from shrivelling. Pot firmly, in good rough osmunda or other fibre, as soon as young roots begin to push. A temperature of about 55° F. by night and a comparatively dry atmosphere is suitable during the winter.

Cypripediums of the winter-flowering section will now be making a fine display, which will continue for a considerable period in the new year. There are now so many fine varieties of these useful plants that possibly no two people would select the same dozen as the best, and growers may select them according to their individual taste. We sometimes hear that these plants do not appeal to growers as much as formerly, but the number grown is enormous, and as they come into bloom they are greatly admired. As winter bloomers, as fog resisters, and as plants to produce flowers at the Christmas season they have few rivals, and they are plants which grow on one, and the love for them is undoubtedly acquired. They are very easily grown, and their culture may be attempted by any amateur. They should not be allowed to become absolutely dry at any season.

Deciduous Dendrobiums now at rest must have water afforded them with discretion for some considerable time. No shrivelling of the stems must be allowed for want of water at the roots, and the other extreme must be strictly guarded against.

Dendrobium Phalænopsis and D. formosum are now in bloom, and at this dull season their flowers are most useful. When the blooms are over,

or the scapes removed, the plants should be carefully rested in a temperature which does not fall much below 60° F., and receive sufficient water to maintain the pseudobulbs in a plump and healthycondition. The atmosphere should be kept fairly dry, to assist in thoroughly ripening the pseudobulbs. D. infundibulum, D. Jamesianum, and other which are best accommodated in the Cool house during the summer months, will be much better removed to the Cool end of an Intermediate house for the winter, and these, being evergreen plants, must not be allowed to suffer for want of water at any time. Other evergreen Dendrobiums, such as D. thyrsiflorum, densiflorum, pulchellum, and others which are now resting, should also have water afforded them whenever they become dry. Although not so popular as they were at one time, they are still a most interesting and fascinating class of plants, and deserve more extended cultivation.

VANDA CŒRULEA, for the most part, will have passed the flowering stage, and should be rested in a temperature of about 60°F., paying strict attention to the ventilation and the atmospheric condition of the house. Very little water at the roots will be needed; only sufficient to keep the plants from shrivelling. Vandas of the V. tricolor and suavis group may be repotted, if they have lost their leaves and become leggy. This operation should only be performed when real necessity arises, as they resent root disturbance at any time. Live sphagnum moss pressed firmly among the roots makes a suitable compost, and broken crocks may be added to make the whole porous. Ample drainage is necessary, and each stem should be made secure, and the moss sprinkled with water whenever it becomes dry. The plants should be stood on a damp bottom, and a temperature of 60° to 65° F. maintained.

ANGRÆCUMS.—These interesting plants require the warmth of the East Indian house the whole year round, and a reasonable amount of atmospheric moisture should be retained at all seasons. Being evergreen, they must not be allowed to remain dry for any length of time. A. sesquipedale is the best-known, but all the large-growing species, with the hybrid A. Veitchii, thrive under the same conditions. The smaller-flowered kinds which bloom during winter and early spring, require the same conditions as regards heat and moisture, but owing to their diminutive stature they are best grown suspended near the glass where they can receive all the light possible. A. Sanderianum, I find, succeeds best grown down on the stage in a fairly humid position.

AERIDES.—These inmates of the East Indian house, with the allied Saccolabiums, and Rhynchostylis, are not grown at the present day as much as their merits deserve. They will now have completed their growths: the green tips of the roots become sealed over, and only sufficient water is necessary to keep the plants in a normal condition.

Renantheras require the same treatment, but succeed with slightly less heat.

Calanthes.—The deciduous section will now be in bloom, and at this season all flowers are scarce and appreciated. When about two-thirds of the flowers have opened they may be removed to cooler quarters, where their flowering period will be prolonged. They will now need very little water, and as soon as the flowers are over they should be placed in their resting quarters on a light shelf, in a temperature of about 55° F., where no water will reach them. The later-flowering varieties, as C. Regnieri and some of the hybrids, should have every encouragement to develop their flower spikes.

Odontoglossums.—Plants of O. Uroskinneri, O. bictoniense, and others of this section that are growing fast, and are in want of new rooting material, may have attention. These fleshy-rooting plants should not be potted too firmly, and the compost must be thoroughly porous. Like O. grande, they require a slightly higher temperature during the winter than the Columbian species; therefore it is advisable to remove them to the cool end of an Intermediate house. These remarks also apply to O. Insleayi, O. Schlieperianum, O. Rossii, and O. Cervantesii. O. citrosmum has now completed its pseudobulbs, and water should only be afforded it at long intervals.

Miltonia vexillaria and its hybrids are now growing rapidly, and the roots are pushing through the new compost. They require care as regards watering, as they are not yet capable of taking full supplies. The compost should become dry between each application, but by the spring they will take water readily, and produce strong spikes. They should occupy a light position in a house where a temperature of 55° F. is maintained at night, with a slight increase during the day. On weak delicate plants the leaves may remain enfolded together, in which case they should be liberated at once, to prevent them from becoming deformed. M. Roezlii, M. Phalænopsis, and M. Bleuana require rather more heat, and should be placed in the warmest part of the house.

Sobralias.—Any plants that are pushing new roots from the base of the young growths may have new material afforded them, if they require it. They succeed in a similar compost to that used for the green-leaved Cypripediums, with rather more good fibrous loam added. After root disturbance they should be watered carefully, but when well-established dryness at any time must be avoided. The proper place for these plants the whole year round is the Intermediate house; they like plenty of light.

Cymbidiums.—Plants of C. Lowianum and its hybrids should also enjoy all the light possible at this season, and those which are not as yet showing their flower spikes should for some little time to come still be kept on the dry side. Those in which the flower spikes are perceptible should receive

every encouragement, and be given water at the roots whenever they become dry. C. insigne and its hybrids, which have been grown in the Cool house during the summer, will now do better if removed to a house where a few degrees more heat are maintained.

Epidendrum vitellinum.—This bright-coloured Orchid deserves to be grown in quantity. Both the spring and autumn-flowering varieties are desirable, as they supply a colour that is poorly represented in our collections. The plants should be well supplied with water whilst making their growths, and after producing their flowers a partial rest may be allowed. A clean porous compost answers their requirements. The autumn-flowering variety has just passed out of bloom, and should for some little time be kept on the dry side.

Pleiones.—P. maculata, P. lagenaria, and P. Wallichiana, as they pass out of bloom, may be repotted. The treatment of these delightful little plants has been given so frequently in these pages that there is no need to repeat it. I mention them so that amateurs may know that the season has arrived when any necessary repotting may be undertaken.

Zygopetalum Mackayi, the best-known species of the genus, succeeds in a stove-like temperature, and is now sending up strong spikes of bloom *Z.* intermedium, crinitum, and the hybrid *Z.* Perrenoudii require the same treatment. When flowering is over, any necessary repotting should be done. Being free-rooting species, plenty of pot-room and a good depth of compost is required. A mixture of good turfy loam and osmunda fibre, with sufficient crocks to keep the soil sweet and open, makes a suitable compost. The pots should be well-drained, and care in watering is neccessary until the roots have taken hold of the new compost.

Oncidiums.—The dwarf, yellow-flowered O. cheirophorum, with O. tigrinum and some late-flowering O. varicosum, are in bloom. They succeed well in the Intermediate house, and after flowering must be induced to rest, sufficient water only being given to keep the bulbs firm and plump. There is no month in the year when some species of this large genus is not in bloom, and there is plenty of material to select from.

General remarks.—Each species of Orchid has a proper season for repotting, that is to say, a season when it suffers less from root disturbance than at any other, hence the necessity of repotting plants at the right time. I would recommend all cultivators to study the roots and their action to the best of their ability, as I feel sure that they will find much to instruct and interest them. It is by these small things that plants teach us their likes and dislikes, and talk to those who are able to comprehend them. Many Orchids are ruined by an excess of water to the roots while at rest, and too little when in full growth, so that both the state of the plant and the season of the year have to be taken into consideration.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Society was held at the London Scottish Drill Hall, Buckingham Gate, Westminster. on October 23rd, and brought together a fine display of Orchids, the awards consisting of one First-class Certificate, three Awards of Merit, three Preliminary Commendations, and six Medals. (The meeting held on October 9th was a special Show of Fruits, and no other exhibits were admitted).

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), Sir Harry J. Veitch, Sir Frederick W. Moore, W. Bolton, W. H. White, Arthur Dye, J. Cypher, J. Charlesworth, C. H. Curtis, F. J. Hanbury, F. K. Sander, Pantia Ralli, R. A. Rolfe, Stuart H. Low, and T. Armstrong.

Before commencing the ordinary business the Chairman referred to the great loss the Committee had sustained in the death of Mr. Elijah Ashworth, Harefield Hall, Wilmslow, who had been a member for many years. He also alluded in suitable terms to the death of Mr. Oswald O. Wrigley, Bridge Hall, Bury, one of the oldest Orchid amateurs in the country, and moved that a message of condolence be sent to the members of both families on their bereavement.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM CRISPUM THE PREMIER.—A remarkably fine, home-raised seedling, of perfect shape, the sepals and petals being very broad and pure white, while the well-fringed lip bore a large red-brown blotch in front of the yellow crest, with a few smaller spots at the sides. Exhibited by Messrs. Charlesworth & Co.

AWARDS OF MERIT.

LÆLIOCATTLEYA ST. GEORGE BRYNDIR VAR. (Lc. St. Gothard × C. Fabia).—A handsome form, most like the Cattleya parent, and having bright rosy-mauve sepals and petals, and a purple-crimson lip, margined with lilac, and the disc bright golden yellow. Exhibited by Dr. Miguel Lacroze.

LÆLIOCATTLEYA ZENO (Lc. St. Gothard × C. Luegæ).—Another fine thing, with the Cattleya shape, the broad sepals and petals being bright rose in colour, and the front of the lip deep ruby-crimson. Exhibited by Messrs. Charlesworth & Co.

SOPHROCATLÆLIA ROEHAMPTON (parentage unrecorded).—A striking hybrid, having flowers of an almost uniform deep claret-purple, with a few pale lines in the throat of the lip. Exhibited by Dr. Miguel Lacroze.

Preliminary Commendations.

Odontoglossum Adonis (hybrid unrecorded × crispum solum).—A remarkable seedling, the flower having very broad white segments, with one round claret-purple blotch on each, the latter character showing the influence of the pollen parent. Exhibited by Messrs. Armstrong & Brown.

Odontoglossum Aspasia (Mars × Colossus).—Another promising seedling, having a flower of good shape, and regularly blotched with claret-red on a white ground. Exhibited by Messrs. Armstrong × Brown.

Odontoglossum Nysa (eximium × Alexandra).—A very richly-coloured hybrid, with the lower three-fourths of the segments closely blotched with claret-purple, and the upper part tinged with rose. Exhibited by Messrs. Charlesworth & Co.

General Exhibits.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), sent a fine spike of Cattleya Browniæ with nineteen flowers, and an equally fine spike of Odontoglossum coronarium.

Dr. Miguel Lacroze, Bryndir, Roehampton, sent Cattleya Miguelito (Octave Doin × Dowiana aurea), most approaching the latter, and C. armainvillierensis (Warscewiczii × Mendelii), a fine thing of intermediate character.

Messrs. Charlesworth & Co., Haywards Heath, staged an exceptionally fine group, of some nine yards frontage, to which a Silver-gilt Flora Medal was awarded. It contained a fine lot of well-grown Odontoglossums, Cattleyas and Læliocattleyas, including good examples of Cattleya Dowiana aurea, C. Mira (Rhoda × Dowiana aurea), a pretty light sulphur-yellow hybrid with a deep crimson lip, Læliocattleya Appam, Lc. Laura (Lc. Scylla × C. Rothschildiana), apricot yellow with rose-coloured markings on the lip, a fine Vanda cœrulea, and others too numerous to mention.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Flora Medal for a fine group, mostly hybrids, including several charming white Cattleyas, C. labiata Prince of Wales, white with a flush of lilac on the lip, forms of C. Venus, Brassocattleya The Baroness Orchidhurst var., a beautiful yellow hybrid, Sophrocattleya luminosa (Sc. Chamberlainiana × C. Dowiana aurea), salmon-rose, with yellow lines on the lip, which is darker in front, Læliocattleya Wrigleyi, Cymbidium Ariadne, a C. erythrostylum hybrid of which C. glebelandense roseum is believed to be the other parent, and other good things.

Messrs. Hassall & Co., Southgate, received a Silver Banksian Medal for a good group, including Brassocattleya Moira (C. Gaskelliana × Bc. Mariæ), white, with a light yellow disc to the lip, a good Bc. Ilene, Bc. Vesta, Cattleya Hilary (Harrisoniana × Enid), with rosy lilac sepals and petals, and the lip yellow with some purple in front, good forms of Cattleya

Moira and Fabia, and a good plant of the distinct and brightly-coloured Lowiara insignis (Sophrocattleya grandiflora × Brassolælia Helen).

Messrs. Stuart Low & Co., Jarvisbrook, were awarded a Silver Banksian Medal for a good group, containing Brassocatlælia President-Wilson (Lc. Lustre × Bc. Leemaniæ), a charming light rose flower, with a darker zone round the yellow disc of the lip, a fine Cattleya Hardyana alba, C. Williamsiæ alba, C. Dowiana aurea, C. Iris, Lælia Dayana delicata, Odontioda Diana and Evelyn, Odontoglossum Phœbe, and others.

Messrs. J. & A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group, including Odontocidium Nainette (Oncidium incurvum × Odontoglossum Harryanum), an interesting hybrid, most like an enlarged edition of the former, good forms of Cattleya Hardyana, Iris, Fabia, Enid, and Prince John, Læliocattleya Carmencita and Pearl, and the fine Brassocattleya Apollo.

Messrs. Sanders, St. Albans, also received a Silver Banksian Medal for a good group, containing several richly-coloured Cattleya Fabia, C. Fabia alba, C. Prince John, Sylvia, Mantinii, and Adula, Læliocattleya Entente, Bulbophyllum nudiscapum, Cypripedium Maudiæ, and a few others.

Messrs. Flory & Black, Slough, sent Læliocattleya Phyllis (Lc. rubens × C. Dowiana aurea), a dwarf and pretty hybrid, with dark purple flowers, Cattleya Snowflake, and Læliocattleya General Maude.

Mr. E. V. Low, Orchid Nursery, Haywards Heath, sent Læliocattleya luminosa aurea, two good plants of Dendrobium Phalænopsis hololeucum, also examples of Cattleya Gaskelliana alba and C. Venus.

At the meeting held on November 6th there was again a good display of Orchids, and the awards consisted of one First-class Certificate, three Awards of Merit, and four medals.

Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), J. O'Brien (hon. sec.), W. Bolton, R. A. Rolfe, J. Wilson Potter, J. E. Shill, E. R. Ashton, T. Armstrong, S. W. Flory, Walter Cobb, J. Charlesworth, Sir Harry J. Veitch, F. K. Sander, Pantia Ralli, F. J. Hanbury, Gurney Wilson, Stuart Low, and R. G. Thwaites.

First-class Certificates.

Cattleya Astron, The Dell var. (Harrisoniana alba × Dusseldorfii Undine).—A most beautiful variety, bearing a spike of six pure white flowers with sulphur yellow disc to the lip. Exhibited by Mr. J. E. Shill. The Dell Gardens, Englefield Green.

Awards of Merit.

Brassocattleya Dietrichiana Ansaldo's var. (Bc. Leemaniæ × C. Fabia).—An exceptionally fine variety, having cream-coloured sepals and petals tinged with lilac, and a very broad lip, which is copiously undulate

and fringed, the column rosy lilac in front, with the centre chrome yellow. Exhibited by J. Ansaldo, Esq., Rose Bank, Mumbles, Glamorganshire.

Miltonia Venus var. Fascinator (vexillaria × Phalænopsis).—A charming hybrid, having flowers of soft rose colour, with a yellowish base to the lip, and a number of radiating lines of crimson spots, recalling those of the pollen parent. Exhibited by Messrs. Charlesworth & Co.

Sophrocatlælia Bryndir (Scl. Sandhage × Lc. Golden Oriole).—A fine hybrid, showing well the influence of the Cattleya ancestry, and having broad ruby red sepals and petals, with an orange shading, and the base of the midrib white, while the lip is dark claret red, with an orange-coloured centre and some yellow veining in the throat. Exhibited by Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Creswell).

General Exhibits.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. J. Collier), showed a fine plant of Cattleya Portia Lorna Fielden, bearing nine flowers, with lip-like colouring at the base of the lateral sepals, this being derived from C. labiata Lorna Fielden, which was also shown. Cattleya Gatton-Ruby (amabilis × Hardyana), with ruby-purple flowers, and Odontoglossum splendidissimum album, with pure white flowers, were also included.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Creswell), showed Cattleya Tityus var. Bryndir (Octave Doin × Enid), bearing a fine spike of four flowers.

Mr. J. E. Shill, The Dell Gardens, Egham, showed Læliocattleya Hardybel (C. Hardyana × Lc. Scylla), and Lc. Sunbeam, the latter from Cattleya Maggie-Raphael alba and some yellow Læliocattleya, the sepals and petals being yellow, and the lip ruby-red, with an orange-coloured disc.

Messrs. Armstrong & Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a choice group, containing good examples of Vanda cœrulea, Cattleya Dowiana albens, an imported form with pure white sepals and petals, C. Archimedes (Armstrongiæ × Fabia), C. Sultan alba, good examples of C. Moira, Sophrocattleya Atalanta (Sc. Ariadne × C. Fabia), having ruby red sepals and petals, shaded with orange, and a darker lip, Læliocattleya Pathan var. Domitian (Lc. Dominiana × C. Dowiana aurea), a richly-coloured form, Miltonia Bleuana, and a few good seedling Odonto-glossums and Odontiodas.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Banksian Medal for a good group, including about a dozen and a-half seedling Cattleya Dowiana aurea, C. Fabia alba, a charming form of C. Enid with white sepals and petals, Brassocattleya Rutherfordii, Sophrocatlælia Meuse, and several splendidly-grown Læliocattleyas.

Messrs. Sanders, St. Albans, received a Silver Banksian Medal for a good group, including several fine Cattleyas and Læliocattleyas, C. Una

(Rothschildiana × Cooksonii), having whitish flowers tinged with lavender, and Lc. Flame (Lc. Elektra × C. Dowiana aurea), flame-coloured sepals and petals and a ruby-red lip, the rare Arachnis Clarkei, Cypripedium Stadium (Dreadnought × Ville de Paris), a pretty hybrid from C. niveum and C. Mastersianum, and other interesting things.

Mr. C. F. Waters, Balcombe, also received a Silver Banksian Medal for a good group, including Cattleya Saturn alba, the rare Læliocattleya Rothschildiæ, examples of Epidendrum vitellinum, Brassocattleya Cliftonii, and other autumn-blooming Orchids.

The meeting held on November 20th was marked by the appearance of a very brilliant hybrid from Messrs. Armstrong & Brown, to which both a First-class Certificate and a Silver-gilt Lindley Medal were given. The other awards were a Cultural Commendation, two Awards of Merit, and two Medals.

Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the Chair), J. O'Brien (hon. sec.), J. E. Shill, W. Bolton, F. J. Hanbury, C. J. Lucas, J. Charlesworth, C. H. Curtis, Sir Harry J. Veitch, Pantia Ralli, A. McBean, T. Armstrong, R. A. Rolfe, F. K. Sander, E. R. Ashton, and Walter Cobb.

First-class Certificate.

Brassocatlælia Lady Manningham Buller (Læliocattleya Ophir × Brassocattleya × Veitchii var. Queen Alexandra).—The superb hybrid represents quite a new break, the flower being of a nearly uniform bright canary yellow, rather deeper on the centre of the lip. It is large, and of excellent shape and substance. It is most like the Brassocattleya parent, with the fringe somewhat reduced, and the colour as described. The Silver-gilt Lindley Medal also awarded marks the appreciation of the Committee of its quality. Exhibited by Messrs. Armstrong & Brown.

Awards of Merit.

Odontoglossum General Allenby (crispum nigrescens × hybrid unrecorded).—A promising seedling, the spike at present three-flowered, the sepals and petals claret-red with a narrow white margin and base, and the broad lip white, with a dark claret blotch in front of the yellow crest. (The second parent is a blotched hybrid purchased in France without name or record). Exhibited by Messrs. Flory & Black.

Sophrocatlælia Anzac var. Vesuvius (Scl. Marathon × C. Dowiana).—A brilliant hybrid, the flower being of excellent shape, with broad, carmine-rose sepals and petals, and the lip rather darker in front, with some yellow in the throat. Exhibited by Messrs. Charlesworth & Co.

Cultural Commendation.

Cattleya Astron.—To Mr. J. E. Shill, gardener to Baron Bruno

Schröder, The Dell, Englefield Green, for a splendidly-grown plant bearing a spike of ten pure white flowers, and much resembling the one certificated at the last meeting.

General Exhibits.

The Duke of Marlborough, Blenheim (Orchid-grower Mr. J. Smith), sent Cattleya President Wilson (labiata alba × Fabia Blenheim var.), a charming thing, having cream-white sepals and petals, and some crimson crimson markings on the front of the lip, and C. Vesuvius (Venus × Iris), a brightly-coloured hybrid, but not yet fully developed.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), exhibited Brassocatlælia Antoinette (C. Portia cœrulea × Bl. Helen), a really remarkable thing, the flowers being large, and having very broad bright purple segments, with a slight violet tinge, and the broad lip resembling that of C. Bowringiana in character, though with an obscure fringe. The plant, however, had more of the character of the pollen parent. It will be interesting to see what other seedlings are like.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Flora Medal for a choice group, in which Cypripediums and the Cattleya group were well represensed. We noted a fine form of Cattleya Venus, of the Iris type, C. Moira magnifica, C. Maggie-Raphael alba, C. labiata Mrs. E. Ashworth, white with a purple blotch on the front of the lip, Læliocattleya Alma (Lc. Ernestii × C. Dowiana), yellow, with some red veining on the lip, Cypripedium Germaine Opoix, Odontioda Diana, and other good things.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a fine group, the centre being made up of a number of well-flowered Epidendrum vitellinum, interspersed with white Odontoglossums of the xanthotes type, giving a charming effect. We noted also examples of Odontoglossum eximium, Odontioda Hypatia (Odm. armainvillierense × Oda. Diana), claret-red with a few narrow white markings, the very distinct Sarcopodium Cœlogne, Cypripedium Germaine Opoix, Cattleya Portia and Miguelito, with other good things.

Messrs. J. & A. McBean, Cooksbridge, staged a pretty little group, including well-grown plants of Odontioda keighleyensis and Lambeauiana, Brassocattleya Penelope (C. Fabia × Bc. Maroniæ), Cattleya Bellona, Enid, and Fabiata, and Sophrocattleya Pearl.

Messrs. Flory & Black, Slough, sent a good form of Sophrocatlælia Eros, and a well-blotched Odontoglossum.

Manchester & North of England Orchid.

A meeting was held at the Coal Exchange, Manchester, on Thursday, October 4th, 1917, when the members of Committee present were: The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan,

J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. R. Handley, J. Howes, A. Keeling, D. McLeod, J. McNab, W. Shackleton, H. Thorpe, and H. Arthur (Secretary).

First-class Certificates.

Læliocattleya Queen Marie var. ashlandensis (Lc. Walter Gott × C. Dowiana aurea), and Cattleya Venus var. Colossus, a very fine form; from R. Ashworth, Esq.

Cattleya Princess Royal var. Fire King (Fabia × Hardyana), a well-set flower of intense colour; from W. R. Lee, Esq.

Cattleya Harold var. Drapeau Blanc (Gaskelliana alba × Warscewiczii Frau Melanie Beyrodt); from Mrs. S. Gratrix.

Awards of Merit.

Brassocattleya Soprano (Bc. Mrs. J. Leeman × C. iridescens), and Cypripedium Atherton Walker (aureum Surprise × Gaston Bultel); from Mrs. Gatrix.

Læliocattleya fulva aurea (Lc. Golden Oriole × C. fulvescens), and Cattleya Astron var. alportensis (Harrisoniana alba × C. Dusseldorfii Undine); from S. Gratrix, Esq.

Cattleya Fabiata (Fabia × Portia), and C. Fabiata var. Champion; from J. J. Bolton, Esq.

Cattleya Sybil magnifica; from R. Ashworth, Esq.

Læliocattleya Adrienne (Juno × St. Gothard); from Dr. Craven Moore.

Awards of Appreciation.

Odontoglossum eximium album (1st Class), and O. amabile var. ashlandense (2nd Class); from R. Ashworth, Esq.

First-class Cultural Certificates.

To Mr. C. Branch, for Cattleya Iris var. Coriande, and Odontoglossum crispum xanthotes, carrying two branched spikes each with about 30 flowers.

To Mr. J. Law, for Cattleya Harrisoniana, carrying three spikes of flowers.

A Silver-gilt Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for a very fine group, in which varieties of Dendrobium Phalænopsis were effectively staged with a number of good Cattleyas, Læliocattleyas, Cypripediums, and Odontoglossums.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a fine group of Odontoglossums, Cattleyas, and Læliocattleyas.

Silver Medals were awarded to the Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. E. Marshall), for a group of choice Cypripediums; to Messrs. Cypher & Sons, Cheltenham, for a fine group, in which plants of Vanda cœrulea, Brassocattleya Maronii, Oncidium varicosum, and O. incurvum album were effectively staged with a number of good Cattleyas,

Læliocattleyas, and Cypripediums; and to Messrs. Sanders, St. Albans, for a fine group of Cattleyas and Cypripediums.

Interesting exhibits were staged by J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law); Mrs. Gratrix, Whalley Range (gr. Mr. J. Howes); S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); Dr. Craven Moore, Victor Park, Manchester (gr. Mr. T. Arran); Messrs. Charlesworth & Co., Haywards Heath: and Messrs. Keeling & Sons, Bradford, several of them appearing in the above Award list.

At the meeting held on October 18th the members of Committee present were: The Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, A. Hanmer, F. Houghton, J. Howes, A. Keeling, D. McLeod, J. McNab, H. Thorp, and H. Arthur (Secretary).

Fitst-class Certificates.

Cattleya Thora var. Leeana (Mrs. Pitt × Empress Frederick), C. Fabia var. Prince of Wales, and Odontoglossum Queen Maatkha; from W. R. Lee, Esq.

Læliocattleya Britannia var. Hermione (C. Warscewiczii Frau Melanie Beyrodt × Lc. Canhamiana), Lc. Mita (C. Fabia × Lc. Golden Oriole), and Cattleya Ivernia (Mossiæ Wageneri × intertexta alba); from S. Gratrix, Esq.

Læliocattleya pumila alba, and Cattleya Venus var. Cyclops; from R. Ashworth, Esq.

Cypripedium Charlesworthii Merle Dene var., and Cattleya Marmion (Haroldiana × Empress Frederick); from A. J. Oakshott, Esq.

Cattleya Dionysius var. superba (C. Fabia × Warscewiczii), and Læliocattleya Marina var Dreadnought; from P. Smith, Esq.

Odontioda Joan var. Cramore; from Dr. Craven Moore.

Awards of Merit.

Cattleya Sybil var. aurea, and C. Bowringiana magnifica; from J. J. Bolton, Esq.

Cattleya Hardyana Robiana and C. Naida var. superba; from R. Ashworth, Esq.

Læliocattleya luminosa The Knowle var. (L. tenebrosa Walton Grange var. × C. Dowiana aurea), and Lc. Clive var. Golden Beauty (L. præstans × C. Dowiana aurea); from John Hartley, Esq.

Cattleya Hardyana Houghton's var.; from F. Houghton, Esq.

Cypripedium Muriel var. amethystinum, a well-coloured form; from R. W. Rickards, Esq.

Brassocattleya Lisette (Bc. Mariæ × C. Dowiana aurea); from Messrs. J. & A. McBean.

First-class Award of Appreciation.

Odontoglossum Davenportii ; from R. Ashworth, Esq.

First-class Cultural Certificates.

To. Mr. S. Findlow, for a magnificent specimen of Odontoglossum grande, carrying over 70 flowers (a Silver Medal also being awarded), and Cypripedium Charlesworthii Merle Dene var.

To Mr. C. Branch, for Odontoglossum Queen Maatkha.

A Gold Medal was awarded to W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for an exceptionally fine group of Cattleyas, Odontoglossums, and Cypripediums, with plants of Dendrobium Phalænopsis, Brassocattleya King-Emperor, and others.

A Large Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), for a very fine general group.

Silver Medals were awarded to J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law) ; Messrs. Cypher & Sons, Cheltenham, and Messrs. Sanders, St. Albans, for fine general groups.

Interesting exhibits were staged by S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes) ; A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow) ; P. Smith, Esq., Ashton-on-Mersey (gr. Mr. Thompson) ; John Hartley, Esq. Morley (gr. Mr. Coupe) ; F. Houghton, Esq., Appleton (gr. Mr. Maddock) Dr. Craven Moore, Victoria Park, Manchester (gr. Mr. T. Arran) ; R. W. Rickards, Esq., Usk Priory, Monmouthshire ; and Messrs. J. & A. McBean, Cooksbridge, several of which appear in the above list of Awards.

At the meeting held on November 1st the members of Committee present were : The Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, P. Foster, A. Hanmer, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, J. McNab, W. Shackleton, H. Thorp, and H. Arthur (Secretary).

First-class Certificates.

Cattleya Sava-Queen var. exquisita (Suzanne Hye de Crom × Gaskelliana alba), a large, well-set flower, white, with distinct markings on the lip ; Sophrocattleya Thwaitesiæ (S. grandiflora × Catleya Mendelii), a flower of even colour, with yellow edges to the lip ; from S. Gratrix, Esq.

Cypripedium John Hartley (Reginald Young × Shogun), a very fine round flower, with broad segments ; from John Hartley, Esq.

Odontoglossum crispum xanthotes var. The Gentlewoman, a large flower, distinctly spotted ; from W. R. Lee, Esq.

Læliocattleya Myrrha var. superba (Lc. Gottoiana × C. Dowiana), a well-shaped flower, of even colour ; from P. Smith, Esq.

Cattleya Fabia Imperator, a magnificent flower, of brilliant colour, with intense lip ; from Messrs. Sanders.

Awards of Merit.

Odontoglossum amabile Ashworthiæ, O. punctatum var. Princess Maud, Cattleya labiata Pride of Southgate, C. Corona (Mantinii × Hardyana), C. Linda Ashworth's var. (Arachne × Dowiana aurea), C. Fabiata and Brassocattleya Cliftonii var. Ashworthiæ; from R. Ashworth, Esq.

Cattleya Astron var. Madonna (Dusseldorfii Undine × Harrisoniana alba), Læliocattleya Armada West Point var. (Lc. luminosa × C. fulvescens), Brassocattleya Oberon Sander's var. (Bc. Veitchii × C. Schrœderæ), and Cypripedium Actæus; from S. Gratrix, Esq.

Cattleya Portia Heathfield var., and Læliocattleya Serbia var. Princess Patricia; from J. J. Bolton, Esq.

First-class Cultural Certificates.

To Mr. E. Rogers, for Pleione lagenaria.

To Mr. J. Law, for Cattleya Portia Heathfield var.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Davenport), and W. R. Lee, Esq., Heywood (gr. Mr. C. Branch), for very fine groups of autumn-flowering Orchids.

Silver Medals were awarded to Col. Sir John Rutherford, Bart, M.P., Blackburn (gr. Mr J. Lupton); John Hartley, Esq., Morley (gr. Mr. Coupe), and to Messrs. Cypher & Sons, Cheltenham, for fine general groups.

The Exors. of O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged four plants of Odontoglossum grande aureum, Cypripedium Bianca, Cattleya armainvillierensis, the rare Cirrhopetalum Rothschildianum, and Pleione lagenaria.

Interesting exhibits were staged by S. Gratrix, Esq., Whalley Range (gr. Mr. J. Howes); J. J. Bolton, Esq., Pendleton (gr. Mr. J. Law); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), and Messrs. Sanders, St. Albans, several of which gained awards, as recorded above.

The Secretary regrets to report the deaths of O. O. Wrigley, Esq., of Bury, and Elijah Ashworth, Esq., of Wilmslow, gentlemen who were, with others, instrumental of the foundation in the Society, and keen lovers of Orchids.

Orchids in Australia.—I am glad to say that Orchids are exempt from the topsyturveydom of the war, and strikes, which are always with us in Australia. I find their cultivation a great solace. I have just bloomed upwards of one hundred plants of Phalænopsis, mostly P. Schilleriana. Many had forty to fifty blooms, and they made a grand show. I have about five hundred seedling Cypripediums in all stages, some of flowering size. I am succeeding with all classes of Orchids now.—Arthur Yates, Sydney, N.S.W.

ORCHID NOTES AND NEWS.

THE remaining meetings of the Royal Horticultural Society for the year will be held at the London Scottish Drill Hall on November 6th and 20th and December 4th, when the Orchid Committee will meet at the usual hour, 11.45 a.m. The first meeting in the New Year is fixed for January 15th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on Nov. 1st and 15th and Dec 6th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The first meeting of the New Year is fixed for January 3rd.

The opening meeting of the session of the Kew Gardeners' Mutual Improvement Society was held on Monday, October 15th, the subject being "A Talk about Orchids," by Mr. R. A. Rolfe, A.L.S.

We have to thank an old correspondent across the water for a highly complimentary letter respecting the *Orchid Review*, and he concludes: "May the weight of years burden you but little in your good work. Finally, when we have that peace which we all crave, commemorate with a coloured plate each month, even if the cost goes to war prices." The question of a coloured plate has several times been raised, and we have no doubt it would be highly popular, as so many remarkable and beautiful hybrids are constantly being raised, and nothing short of colour can do justice to the subject. But will not some of our wealthy Orchidists step in and make such a thing possible?

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

G.H.L.—"La Mosca" is a species of the remarkable Andine genus Telipogon, which has never established itself in cultivation, probably because of the difficulty of getting the plants home alive. It ranges from Ecuador to Costa Rica, and there are many species. The flower sent is not yet identified. The other is Sigmatostalix costaricensis, Rolfe in Kew Bull., 1916, p. 78.

ENQUIRER.—There is not the slightest doubt about Cattleya Warscewiczii. A fine, four-flowered specimen and a painting from Warscewicz himself are preserved in Lindley's Herbarium at Kew, and the species was described by Reichenbach as long ago as 1854.

F.S.M.—From the description, we should say that both are forms of Cattleya labiata, which varies much in colour. The second name is of no importance and should be discarded.

C.J.P.—The Cœlogyne has not yet been identified.

INDEX.

ACQUIRED characters, 28.

Adaptations, 28.

Aërides Borassi, 173 ; carnosum, 197 ; cylindricum, 64 ; decumbens, 197 ; Dominyanum, 208, 243 ; hybridum, 208, 243 ; Fieldingii var. hybridum, 208 ; latifolium, 19 ; tæniale, 197 ; Vandarum, 64.

Albinism and Colour in Orchids, 6, 30.

Amateur's difficulties, 55.

Angræcum bilobum, 9 ; hyaloides, 11 ; Kirkii, 9 ; primulinum, 11 ; Sanderianum, 10.

Angræcum, natural hybrid, 11.

Angræcums, 11, 259.

Anguloa Clowesii (noble specimen of), 250 ; eburnea, 151 ; uniflora, 151 ; virginalis, 151.

Answers to Correspondents, 24, 48, 72, 95, 120, 144, 168, 192, 216, 240, 272.

Anœctochilus sikkimensis, 245.

Anthogonium gracile, 244 ; var. alba, 244.

Arachnanthe Lowii, 167, (seen through coloured spectacles), 79.

Arundina bambusæfolia, 244.

Atmospheric moisture, 14

Bateman, James, aversion to hybrids, 249 ; on Calanthe Veitchii, 249.

Bentham on Reichenbach, 223.

Bernard, N., Orchid fungi, 190.

Bifrenaria Harrisoniæ, 184.

Bollea cœlestis, 56, 57 ; Lalindei, 56.

Bollea, the genus, 56.

Bolleas, 56.

Books, *Horticultural Directory and Year Book*, 70.

Brassavola Digbyana, lip of, 170, 241 ; recrossing with, 241.

Brassia arcuigera, 222.

Brassias, Peruvian, 222.

Brassocatlælia Antoinette, 267 ; Baroness, 242 ; B. Orchidhurst var., 20 ; Harrisonii, 68 ; Lady Manningham Buller, 241, 266 ; Ophir, 242 ; O. var. Lady Manningham Buller, 242 ; President-Wilson, 264 ; Queen of the Belgians, 91 ; Truffautiana, 43.

Brassocattleya Diana, 30 ; Dietrichiana, 30 ; D. Ansaldo's var., 264 ; Douamont, 30 ; Floryi, 66 ; Ilene The Bride, 235 ; Lady-Jellicoe, 91 ; Lady-Veitch, 210 ; Lisette, 269 ; Lotos, 235 ; Moira, 263 ; Mr. D. Bois, 30 ; Oberon Sander's var., 271 ; Penelope, 43, 267 ; Pocahontas alba, 41 ; Princess-Ena, 138 ; Rex, 210 ; Sofrano, 236 ; Soprano, 268 ; speciosa, 68 ; Thompsonii, 19.

Bulbophyllum Balfourianum, 187 ; cylindraceum, 245 ; Ericssonii, 185 ; hymenanthum, 245 ; mirum, 90 ; penicillium, 245.

CALADENIA Patersonii, 39.

Calanthe herbacea, 244 ; Veitchii, 249, (at Mr. Rucker's), 249 ; vestita, 76.

Calanthes, 181, 207, 260.

Carteretia paniculata, 196.

Catasetum, females of, 154 ; sexuality in, 154

Catasetums, 87.

Cattleya Acis, 202 ; Æneas, 234 ; Albion, 209 ; Alcimedia Snowstorm, 21 ; Aliciæ, 202 ; ammeboa, 12 ; Apelles, 90 ; Archimedes, 265 ; Ariadne, 227 ; Arlequin, 211 ; Astron, 42, 211, 256, 257, 266 ; A. alportensis, 268 ; A. Dell var., 256, 264 ; A. Madonna, 271 ; Blackii alba, 68 ; Bowringiana and its hybrids, 12, 25 ; Brenda, 19 ; Browniæ, 32 ; Capella, 211 ; Charm, 165 ; Claesiana alba Orchidhurst var., 18 ; Clotho, 42 ; Corona alba, 6 ; Cowaniæ alba var. Princess, 94 ; Doreen, 237 ; Dowiana, 166, (and albinos), 7, 30, (and colour transmission), 6, 30, (and its derivatives), 25, (and purple), 7, 25, (and yellow), 7, 25, (hybrids of), 7, 25, 170, (purple), 241, (re-crossed), 7, 30, (leaf-disease of), 58 ; Dusseldorfii Undine (× Warneri alba), 235 ; Enid alba var. Fairy Queen, 94 ; Fabia, 225 ; F. alba, 30, 226 ; F. a. Mme. Ed. Debrie, 30 ; F. Sunset, 225 ; Freda-Sander, 44 ; Gaskelliana (× Lc. Lustre), 235 ; Gatton-Ruby, 265 ; Hardyana, 25, 28, 82 ; (white), 25 ; H. var. Herbert Goodson, 202 ; Hilary, 263 ; Harold var. Drapeau Blanc, 268 ; illustris var. Savoyard, 189 ; intermedia, 184 ; Iris, 191 ; I. Orchidhurst var. 235 ; Ivernia, 269 ; labiata elegans, 251 ; l. flammea, 226 ; l. Mrs. E. Ashworth, 251 ; Lady-Crossley, 19 ; Lady-Rowena, 113 ; Lawrenceana, 17, (in Australia), 17 ; Linda Ashworth's var., 271 ; lobata, 155 ; Loddigesii alba, 256 ; Lodilboa, 12 ; Mabel, 69 ; Magali-Sander (malformed), 143 ;

Cattleya—
Marmion, 269; Mary-Sander, 43; melodboa, 12; Miguelito, 263; Mira, 263; Monastir, 18; Mossiæ, 105, (white vars.), 106; Mrs. Pitt Charlesworth's var., 210; Naidia exquisita, 210; Olivia, 231; President-Wilson, 267; Prince John var. Dorothy Sharp, 236; Princess-Patricia, 240; Princess-Royal, 188; Regina, 235; Rosita Orchidhurst var., 188; Sava-Queen var. exquisita, 270; Schilleriana spiendens, 100; Schroederæ alba (× amethystoglossa alba), 251; Sirius, 236; Thora, 41; Thora var. Leeana, 269; triumphans var. The Baron, 209; Una, 265; Valeria, 19; Vesuvius, 267; Victoria-Regina, 31; Warscewiczii, 272; W. Mrs. E. Ashworth, 187; W. rochellensis, 210; W. H. Evans, 47; William, 78; Zephyr, 43.

Cattleya abnormal, 255; Fungus, 189; seeds (germination of), 189, 191, 203; scarlet, 170.

Cattleyas, 35, 62, 85, 108, 133, 159, 179; albino, 6; autumn-blooming, 239; labiate (distribution of), 28; white (origin of), 6, 25, 30.

Calospora Vanillæ, 58.

Calendar of Operations, 13, 34, 61, 84, 108, 133, 156, 178, 205, 228, 257.

Charlesworth, J., and J. Ramsbottom, Structure of Orchid Leaves, 47, 53, 54.

Characters, acquired and heritable, 28.

Chysis bractescens, 150.

Cirrhopetalum longidens, 193.

Cochlioda and its hybrids, 181.

Cochlioda Nœtzliana, 98, (and colour), 7, (as a parent), 53.

Cockroaches, a stirring scene, depicted by George Cruikshank, 160.

Cœliopsis hyacinthosma, 107.

Cœlogyne cristata, 244; maculata, 29; pandurata, 240; præcox, 29, (monstrous state of), 4; Reichenbachiana, 83; Rossiana, 213; Wallichiana, 29.

Cœlogynes, 135.

Cogniaux & Goossens, *Dictionnaire des Orchidées*, 59.

Colour, constancy of, 8; dominance, 8.

Colours, union of diverse, 8.

Composts, 34.

Corvanthes Feildingii, 198; macrantha, 198, 199. (fertilisation of), 199, 200; macrocorys 201; maculata var. vitrina, 200, 201.

Coryanthes, bee which fertilises, 200; flower of, 199; "honey" of, 199; structure of, 199.

Cross-fertilisation, 28.

Cruikshank, G., Drawings by, 160.

Crisp, Sir Frank and Lady, 215.

Cycnoches chlorochilon, seeds of, 167; Egertonianum (male and female flowers), 153; Miss Drake's drawing, 152; Rossianum, 53, 213; Warscewiczii, 53, 213.

Cycnoches, 53, 87, 152; sexual dimorphism in, 152, 154; "sports," 152.

Cymbidinm Albatross, 104; albucæflorum, 106, 107; Alexanderi, 60, 102; A. var. cœleste, 117; aloifolium, 173, 174, 175, (and its allies), 173; amabile. 103; Ariadne, 263; Beatrice, 43, 104; bicolor, 173; Butterfly, 103; Capella, 43, 104; Castor, 103; C. var. aureum, 18; Chaffinch, 104; Coningsbyanum, 102; Cooperi, 103; Corona, 4, 60, 66, 104; crassifolium, 174; Diana, 104; D. flava, 139; Doris, 101; Dryad, 102; elegans, 244; erectum, 173; Finlaysonianum, 174; glebelandense, 101, 102; g. var. roseum, 103; Gottianum, 102; insigne, 101, (and its hybrids), 101, (hybrids of), 60; i. album, 67, 73 120; insignigrinum, 96, 104; Iona, 102; J. Davis, 102; Lawrenceanum, 102; limbatum, 184; madidum, 106; Mannii, 174; Mavis, 103; Moira, 43. 104; Munronianum, 119; Parishii, 83, P. Beardwood var., 117; Pauwelsii, 102; pendulum, 174, 175; p. var. brevilabre, 174; Queen-of-Gatton, 103; Sanderi, 101; Schlegelii, 102; Schroederi, 101; Sibyl, 60; simulans, 175; Sybil, 36, 43, 104; S. sulphureum, 44; Tracyanum (seeds of), 144, 166; tricolor, 174; Venus, 103; Wallichii, 174; Winnianum, 80, 81.

Cymbidium section Aloifoliæ, 175.

Cymbidiums, 62 109, 260; from Bristol, 60.

Cypripedium Actæus (× Boxallii), 96; Actæus ashlandense, No. 3, 21; Alethea, 44; Ashworthii, 251; Atherton-Walker, 268; Baron-Harefield, 23; Bassano (× Fairrieanum), 21; Calceolus, 124, 125; Calceolus × macranthos, 124, 125; candidum, 125; caudatum, 130-132, 147, 148; c. varieties of, 132; c. roseum, 132; 147, 148; c. varieties of, 132; c. roseum, 132; c. Sanderæ, 121, 130, 137, 149; c. Uropedium, 149; c. Wallisii, 132, 146, 148, 149; c. Warscewiczii, 132, 149; Chardwar, 20; Col. Carey-Batten, 118; Conyngham, 21; cordigerum, 125; Curlew, 20; Dauthieri, 52, 53 (sports of), 52, 214, (varieties of), 52; Desdemona Haddon House var., 72; Eurybiades The Baron, 91; E. New Hall Hey var., 71, 72; Eva Carey-Batten, 118; Fairrieanum, 244; glancophyllum (× Curtisii), 21; Glorita, 41; guttatnm, 125: Hartwegii, 132; insigne Harefiel.l Hall var., 251; John-Cypher, 20, 22, 48; John-Hartlev, 270; Lathamianum var. Cardinal Mercier, 42, Lloyd-George, 68; macranthum, 124, 125; m. album, 124; Madame Albert Fevrier Chadwar var., 18; Marshal Haig, 45; Mary, 65; Maudiæ, 82; microsaccos, 125; m. album, 124; mirum, 31; montanum, 125; Mrs. de Laszlo, 21; Mrs Rickards, 22; Nigger, 45; niveum The Grange var., 161; Perseus, 94; Primrose-Dame, 41; purpuratum, 100; Ranji, 116; Robin-Hood, 234; Sedenii (abnormal), 197; speciosum, 124; Stadium, 266; Stonei var. platytænium, 99; Thompsonii, 31; Thunbergii, 124; ventricosum, 124, 125; v. album, 124; Verdun, 45; Vesuvius, 21; Warscewiczii, 132; Winnianum, 80; Wrigleyi, 251.

Cypripedium, a dimerous, 192; a freak, 71; "from South Africa," 171; 3-flowered, 65; seeds (germination of), 191.

Cypripediums, 35, 85, 134, 207; natural hybrid, 124; Siberian, 124; raised by Mr. Winn, 81; Winter-blooming, 239, 258.

Cyrtochilum bictoniense, 182.

DARWIN'S theory, 27.

Davenport, Mr. S., 24.

Day, John, Orchid collection, 99; Orchid drawings, 99.

Dendrobium acuminatum, 159, 161; Arthur, Ashworth, 251; Atherton, 94; bifalce, 196; chloropterum, 196; Clio, 154; formosum, 206; Gatton-Jewel, 89; Gatton-Monarch, 89; Helius, 89; illustre Bartelsianum, 138; i. var. Florence Bartels, 137; Lady-Southgate, 89; Lutwycheanum, 154; var. Clio, 154; L. var. Mitchellii, 154; Lyonii, 159; Nestor, 81; normale, 149; Phalænopsis, 110, 232; ramosum, 245; Rolfeæ (× Salteri), 92; Ruckeri, 245; Salteri (× Rolfeæ), 139; strebloceras var. Rossianum, 213; tetragonum, 55; Treacherianum, 159; Victoria-Regina, 251, Wardianum candidum, 95; Wollastonii, 2.

Dendrobiums. 86, 135. 206, 258; Australian, 55; buds going off; deciduous, 63, 179.

Diacrium bicornutum, 50.

Dichæa ciliolata, 193.

Difficulties of an amateur, 55.

Dominy, Mr., and hybrids, 249; Muling Orcdids, 203.

Doritis, 196; bifalcis, 196; Braceana, 197; Hebe, 197; philippinensis, 197; pulcherrima, 195, 196; Steffensii, 197; tænialis, 197, 245; Wightii, 197.

Durham, C. B., Orchid Drawings, 100.

EPICATTLEYA adboa, 12; plicaboa, 12.

Epidendrum aloides, 175; aloifolium, 173, 175; ciliare (× Cattleya), 166, (in Costa Rica), 166; Endresii, 251; gattonense, 141; organense, 164; pendulum, 174; polybulbon, 65; var. aureum, 65; præcox, 29; prismatocarpum, 180, (leaf-structure of), 53; Spondiadum, 96; tricarinatum, 193; vitellinnm, 261.

Epiphronitis Veitchii, 180.

Eria albolutea, 193; extinctoria, 5.

Eulophia durbanensis, 194; elegantula, 194; obcordata, 194; triloba, 194.

Eulophiella Elizebethæ (× Peetersiana), 51; Rolfei, 51, 67.

Environment, 28.

Events of 1916, 1.

Evolution by means of Hybridisation, 26; divergent, 28; experiments in, 146; in the past, 146; the time element, 146.

FOWLER, J. Gurney, 122.

Freaks and monstrosities, 146.

Fungus Co-operation in Orchid roots, 190.

GALEANDRA Batemanii, 150; Baueri, 150; cristata, 150.

Gardeners' Magazine, 24.

Geographical re-arrangement, 28.

Genotyphes, stable, 28.

Ghent Quinquennial Show, 98.

Ghose, Messrs. G. & Co., 244, 245.

Goodyera hispida, 245.

Govenia limbata, 184.

Gover, Mr. F., 70.

Gynandria Monogynia, the priceless, 171.

HABITATS of Orchids, 145.

Harris, John, and Hybridising, 203.

Hemileia americana, 58.

Hemptinne, Count J. de, 122.

Herbaria, value of, 184.

Hexadesmia crurigera, 128.

History, the making of, 184.

Hybridisation, 28; a cause of variation, 28; alternative methods, 242; and selection, 73, 74, 169; a question of opportunity, 28; defined, 28; pioneer of, 203; progress in, 169, 241; union of diverse characters, 169.

Hybridist, aims of, 6, 8; and colour, 6, 8, 30.

Hybrid analysis, 27; nomenclature, 26, 242.

Hybrids, 27, 73, 246 (and species), 243; composition of, 73, 74; confusion among, 247; constancy of, 122; difficulty of ascertaining parentage, 218; intermediate in structure, 53; leaf-structure of, 53, 54; method of recording, 217; names of, 242; new, 194; of unknown or unrecorded parentage, 217, 218; secondary, 218; succession of, 73; variation among, 73, 74, 121.

INHERITANCE and Evolution, 243.

JAVA, Flora of, 126, 127; Orchids of, 126.

Jordanons, 27.

KERNER and the Origin of Species, 28.

Kew and new Orchids, 127; great cleaning house, 127; Orchids at, 100; scientific activity at, 127.

Kew Bulletin, 127, 216.

Kew Gardeners' Mutual Improvement Society, 272.

Kingia, 196.

Kingiella, 196; decumbens, 197; Hebe, 197, 227; philippenensis, 197; Steffensii, 197; tænialis, 197, 245.

LABELLING, methods of, 217.

Labels, misplacement of, 217.

Lælia Adrienne, 119; Boothiana, 155; cinnabarina (× E. prismatocarpum), 53; Coronet, 48; Cowanii, 8; Degeestiana, 48; grandis var. purpurea, 155; Jessica, 48; Jongheana Ashworthii, 251; lobata, 145, 155; l. alba, 145, 155, 163; monophylla, 59; pumila alba (home-raised), 235; purpurata (hybrids of), 170; p. alba Ashworthiæ, 155; p. Latona, 155, 163; Rivieri, 155; superbiens, 49; Susanna, 119; tenebrosa (× Diana), 119, (× E. prismatocarpum), 53; xanthina, 8, 241, 242.

Lælias, 157; Mexican, 258.

Læliocattleya Adrienne, 268; Agnes, 189; Alma, 267; Appam, 209; Aries, 18; Armada West Point var., 271; Arras, 164; Astoriæ, 218; Athene, 41; Beatrice, 69; boarina, 12, 26; Brasseur-Hye var. Golden Wedding, 215; B.-H. var. Wilps, 218; Breburne, 194; Bronze-King, 233; Cadorna, 141; Calabria, 68; Canhaminosa var. Golden Fleece, 211; Circe, 123, 124; Colombia, 124; Commander-in-Chief, 233;

Cœliocattldya—
crismoloboa, 12 13 ; Daphne, 66 ; Flame, 266 ; fulva aurea, 268 ; General-Maude, 89; Goodmanii, 90 ; Golden-Queen, 211 ; Harclon, 19 ; Hardybel, 265 ; Helene, 234 ; Joy-Sander, 92 ; Lambeauiæ, 202 ; Laura, 209, 263 ; leobroboa, 12 ; Linda, 93, Longueval, 211 ; Lorna, 20 ; Lucia (× C. Mossiæ Wageneri), 143 ; Madame Brasseur Hye, 218 ; Marina, 189 ; Miranda, 66 ; Mita, 19, 236, 269 ; Monastir, 19 ; Monte-Rosa, 140 ; Œnius, 124 ; Phyllis, 264 ; Pronax, 189 ; purleoboa, 12, 13 ; Queen-Alexandra, 19 ; Queen-Marie var. ashlandensis, 268 ; Rodin, 211 ; Santa-Fe, 65 ; Schroglossa, 140 ; Serbia var. Perfecta, 114 ; S. var. The President, 89 ; Serre, 67 ; Sir David Beatty, 47 ; Sir Douglas Haig, 30, 66 ; Soulange Bryndir var., 18 ; St.-George Bryndir var., 262 ; Trident, 65 ; Tydea, 202 ; Vesuvius, 141 ; S. var. Aurora, 164 ; Watsonii, 115 ; Wrigleyi, 33, 251 ; Zena, 236 ; Zeno, 262.

Leaf-structure of hybrid Orchids, 53, 54.

Limodorum tuberculosum, 183.

Lindley, Dr., 75 ; Herbarium, 79 ; honours, 79 ; Obituary notice, 78 ; successor to, 221 ; work of, 75, 77, 78, 79 ; works, 78 79 ; Lindley, *Botanical Register*, 78 ; *Collectanea Botanica*, 78.

Lotzy, Dr. J., on Evolution by means of hybridisation, 26.

Low, Edward V., 122.

Lowiara insignis, 264.

Lycaste Janetæ, 52, 214 ; Rossiana, 213 ; Skinneri, 112, 113 ; (at Bridge Hall, Bury), 112.

MANCHESTER and North of England Orchid Society, 21, 44, 68, 93, 113, 142, 164, 212, 236, 267 ; awards of, 143.

Maron, Ch., Albinism and Colour in Orchids, 30.

Marshall, William, as an exhibitor, 253.

Masdevallia racemosa, 151 ; r. Crossii, 151 ; Winniana, 80.

Maxillaria Shepheardii, 193 ; spathacea, 184.

Maxillarias, 180.

Mead, T. L., Cattleya Bowringiana, 12.

Megaclinium endotrachys, 111 ; velutinum, 111.

Mendel, on constant hybrids, 243.

Mendelian absence, 242, 243 ; allelomorphic characters, 240, 242, 243 ; analysis, 6 ; dominance, 242 ; epistatic characters, 242 ; germ plasm (segregation of), 242 ; homozygotes, 28 ; hypostatic characters, 242 ; nomenclature, 242, 243 ; pairs, 243 ; ratios, 243 ; recessive characters, 242 ; unit-characters, 243.

Mendelians, 242.

Mendelism, 242 ; and Evolution, 243 ; and Orchids, 6, 8, 25.

Miltonia cuneata hybrid, 194 ; Fairy-Queen, 163 ; Isabel-Sander, 187 ; Lyoth var. Conyngham, 164 ; Princess-Mary, 162 ; Roezlii, 129 ; Venus, 67 ; V var. Fascinator, 265 ; vexillaria, 86, 172, 260 ; v. var. Sir Mervyn Buller, 161 ; v. Westonbirt var., 136.

Miltonias, 15, 179, 230.

Miltonioda Ida, 140 ; Thora, 211.

Mistakes in Orchidology, 150, 182, (causes of), 171, 184.

Modifications, 27.

Mormodes, 87 ; Cogniauxii, 59.

Moscow Orchid Society, 122.

Myanthus, 154.

Myrmecophila chionodora, 51 ; c. var. Kimballiana, 51 ; Galeottiana, 51 ; Humboldtii, 51 ; lepidissima, 51 ; Sanderiana, 51 ; Thomsoniana, 51 ; tibicinis, 51.

Myrmecophila, the genus, 50.

NAMES, changes of, 171 ; florists', 218, 242 ; for hybrids, 12, 25, 26 ; for seedlings of identical parentage, 242 ; Jumble names, 12, 25, 26 ; not in accordance with rules, 218 ; of four or five words, 218 ; specific, 218, 240, 242 ; varietal, 218, 242 ; vernacular, 13.

Nanodes Medusæ, 58.

Neocogniauxia monophylla, 59.

Neotinea intacta, 220.

Nomenclature, easy, 76 ; confusion in, 121 ; descriptive, 26 ; euphonious, 26 ; garden, 76 ; innovations in, 26 ; of generic hybrids, 26 ; of hybrids, 26 ; jumble names, 12, 25, 26 ; law of priority, 223 ; polymllabic, 218.

Novelties yet to be discovered, 238.

OBITUARY—Elijah Ashworth, 251 ; Prof. Alfred Cogniaux, 59 ; Lionel Crawshay, 168 ; John Day, 99 ; Oscar Fanyau, 59 ; William Marshall, 252 ; George Massee, V.M.H., 58 ; Prof. Daniel Oliver, F.R.S., 5 ; William Thompson, 31 ; Charles Winn, 80 ; Oswald Osmond Wrigley, 250.

Odontioda Ada, 140 ; Adonis, 116 ; Amethyst, 44 ; Armstrongii, 60 ; aurea var. Beauty, 117 ; Aurora 163 ; Bacheham, 194 ; Boltone, 194 ; Borne, 194 ; Bradshawiæ, 170 ; Brenda, 141 ; Brewii, 52 ; Cardinal, 137 ; Cereus Orchidhurst var , 92 ; Charlesworthii (seedlings of), 52 ; Coronation Orchidhurst var. 113 ; Elaine, 117, 118, 141 ; General Haig, 139 ; Gladys Famille Rose, 140 ; Gratrixiana, 93 ; Gratrixiæ Bryndir var., 42 ; Hiawatha, 140 ; Hypatia, 267 ; Irene var. Glorita, 46 ; Joan Broadlands var., 67 ; keighleyensis, 42 ; Leda, 124 ; Linda, 68 ; Madeline, 52, 71 ; M. var. auriferum, 141 ; M. var. Black Prince, 20 ; M. var. Opal, 67 ; M. superba, 54 ; memoria Lional Crawshay, 186 ; Orion, 92 ; Patricia, 52 ; Prince, 162 ; rosefieldiensis, 104 ; Roydii, 118 ; Sensation, 67 ; St. Quentin, 91, 142 ; Tigris, 117 ; Una, 189 ; Vivienne, 118 ; warnhamensis, 91.

Odontioda, the first, 98.

Odontiodas, variation in, 52.

Odontocidium Nainette, 264.

Odontoglossum Adonis, 263 ; Aglianum, 140 ; Alcibiades, 65 ; Alexandræ, 253, 254 ; 255, (history of), 254 ; Amethyst, 116 ; Ancre, 66 ; armainvillierense memoria J Gurney Fowler, 2 ; Aspasia, 263 ; atropurpureum, 178 ; Badelsmere, 194 ; Bagdad, 94 ; Berewic, 194 ; bictoniense, 182 ; Bluntii, 253. 254, 255 ; Borowart, 194 ; Bullecourt, 140 ; carinferum, 224 ; Cleopatra memoria Lionel Crawshay, 186 ; Conqueror, 42 ; Corona, 92 ; coronarium var. flavum, 175 ;

Odontoglossum—
crispum, 73, 176, 178, 253, 255, (flowered for first time in cultivation), 252, (in a wild state), 73, (with branched spikes), 177 ; c. Ashworthianum, 251 ; c. Dreadnought, 124 : c. Lehmannii, 176, 177 ; c. memoria Lord Kitchener, 92 ; c. Premier, 262 ; c. President Wilson, 138 ; c. solum, 2 ; c. Thompson's var. 31 ; cristatum, 83, (varieties of), 83 ; c. Lehmannii, 83, 95 ; cruentum, 83, 95 ; Delta, 91 ; Doris Orchidhurst var., 20 ; Dr. Andrea Angel, 60 ; Electra, 119 ; eximium album, 268 ; exultans var. Vulcan, 89 ; Fabia, 66, 93 ; F splendens, 139 ; Fellcia, 42 ; Felicity, 163 ; Felix, 71, 118 ; General Allenby, 266 ; gloriosum, 182 ; Gorizia, 140 ; hastiferum, 224 ; h. var. fuscatum, 224 ; harvengtense aureum, 163 ; hellemense, 60 ; Hybla, 140 ; Iconum, 115 ; illustworth, 45 ; Isonzo, 140 ; James O'Brien, 93 ; Lady Maude, 117 ; Lambeauianum, 118 ; Leeanum, 142 ; Lilian, 187 ; Louis var. splendens, 94 ; Mars, 21 ; Mary, 93 ; Mersey-Star, 68 ; Minos, 164 ; Modus, 165 ; nævium, 182, 183 ; Nœtzlianum, 98 ; Norta, 67 ; Nysa, 263 ; odoratum, 182 ; Penelope, 234 ; Peerless var. rotunda, 44 ; Pescatorei var. Shortii, 171 ; Peter, 42 ; præstans, 31 ; prævisum, 31 ; Queen Alexandra var. memoria Lionel Crawshay, 186 ; Reichenbachianum, 178 ; Rex, 124 ; Shortii, 4 ; splendidissimum album, 265 ; Tackii, 72 ; Thompsonianum, 31 ; T. pallidum, 138 ; Trentino, 140 ; Wilps, 116 ; Yula, 237 ; Zoe, 117.

Odontoglossum fungus, 190.

Odontoglossum "scarlet crispum," 170 ; seeds, germination of, 190, 191.

Odontoglossums, 110, 207, 260 ; confluent in series, 74 ; fifty years ago, 37 ; Hybrid, 74 ; (in nature), 38 ; Natural hybrids, 74 ; seedling, 31.

Odontonia Aphrodite, 187, 210 ; Cleverleyana, 60 ; Fanyauiana, 60 ; Norma, 138.

Oncidioda Cora, 4, 19.

Oncidium Cavendishianum (leaf-disease of), 58 ; Forbesii, 227 ; hæmatochilum, 3 ; luridum, 184 ; macranthum, 37, 58 ; Mantinii, 191 ; Marshallianum, 253.

Oncidiums, 86, 158, 231.

Ophrys balarucensis, 123 ; Bertolonii (× Speculum), 123 ; bombyliflora (× Speculum), 123 ; Chobauti, 123 ; lutea major (× Speculum), 123) ; Scolopax (× Speculum), 123.

Ophrys hybrid, 123.

Orchid Basket, Centenary of the, 82 ; Blue of Borneo, 79 ; Collector, Wanted, 238 ; culture (history of), 249 ; culture in other lands, 2 ; fungi, 216 ; Fungus, 71 ; industry, 247, 248 ; Rockery in Trinidad, 5 ; sales fifty years ago, 38.

Orchid Review, 13, 71, 246-9, 249, 272, achievements of, 247 ; and the Ingoldsby Legends, 247 ; and the War, 247 ; coloured plates, 272 ; *Gardeners' Chronicle* on, 247 ; General Index, 249 ; illustrations, 272.

Orchid Stud-Book, 249.

Orchidists' Golden Weddings, 214.

Orchidology and Kew, 245 ; and the Ingoldsby Legends, 247 ; and Mendelism, 6, 8, 25.

Orchidology in England, 245, (Dr. Lindley), 246, (Prof. Reichenbach), 246, (the third period), 246.

Orchids, Ant-loving, 50 ; at Darjeeling, 244 ; at Kew, 167 ; Australian, 39 ; capsules of, 203 ; Chiriqui, 224 ; Classification of, 75 ; Deciduous, 61 ; Diseases of, 58 ; Dried collections of, 239 ; Drying, 24, 239 ; Fifty years ago, 37 ; Florists', 73 ; germination of, 204 ; Greenhoods, 39 ; hybridising, 203 ; in Australia, 271 ; in Italy, 213 ; in Trinidad, 3 ; Javan, 126 ; miniature, 128 ; New, 193 ; of Flora Brasiliensis, 59 ; of Java, 126 ; of the West Indies, 59 ; of 1916, 1 ; resting, 228 ; seedling, 203, (causes of failure), 204 ; seeds of, 203, 204, (germination of), 190, (difficulty of germinating), 204 ; Slug destructive to, 167 ; Spot Disease of, 58 ; wrongly-identified, 121.

Orchis Kelleriana, 123 ; pseudoparviflora, 123 ; Reinhardii, 123 ; Timbalii, 123.

Orchis Cow's-horn, 50 ; natural hybrid, 121 ; new "species" of, 123.

Orchises, late-flowering of, 123.

Origin of Genera by mutation, 146, 149.

Origin of Species by crossing, 121, 122, 243.

Origin of Species in nature. 146, 243.

Our Note Book, 1, 25, 73, 97, 121, 145, 169, 217, 241.

PAPHINIA cristata var. Modigliani, 213.

Parish, Rev. C., Fecundation of Orchids, 30.

Paxtonia rosea, 149.

Peristeria Rossiana, 213.

Pescatobellea bella, 57.

Pescatorea Gairiana, 58 ; Klabochorum, 58.

Pescatoreas, 56.

Phaius simulans, 183 ; tuberculosus, 183 ; Warpuri, 183.

Phalænopsis, 63, 109.

Phalænopsis alboviolacea, 197 ; amabilis, 150 ; amethystina, 197 ; antennifera, 196 ; Aphrodite, 151 ; bella, 197, 227 ; Buyssoniana, 196 ; Esmeralda, 195 ; Gersenii, 226 ; grandiflora, 151 ; Hebe, 197, 227 ; Mannii, 245 ; Regnieriana, 196 ; Rimestadiana, 151 ; Stobartiana, 197 ; sumatrana, 226 ; Valentinii, 227 ; violacea, 226, 227 ; v. alba, 227 ; Wightii, 197 ; zebrina, 226, 227 ; z. var. Gerseni, 226, 227 ; z. var, lilacina 227.

Phalænopsis section Esmeralda, 196.

Philageria, 26.

Pieione Hookeriana (monstrous), 4 ; humilis (monstrous), 4 ; præcox, 29, 244 ; p. alba, 244 ; Reichenbachiana, 83 ; Wallichiana, 29 ; yunnanensis, 88.

Pleione, abnormal development in, 4.

Pleiones, 63 ; in a wild state, 240.

Pleurothallis costaricensis, 193.

Promenæa Crawshayana, 216.

Pterostylis, 39 ; Evolution in, 39.

REICHENBACH, Prof. H. G., 219 ; and the *Gardeners' Chronicle*, 220 ; and Kew, 224 ; and Lindley, 224 ; death of, 247 ; descriptions of, 222 ; genera, 223 ; Herbarium, 219, 222, 223, 246, (opened), 246 ; jealousy, 223, 224 ; materials, 224 ; memorial, 246 : Obituary, notice of, 222 ; on Dr. Lindley, 75 ; papers, 221 ; species, 246 ; successor to, 246 ; system, 223 ; testamentary dispositions, 247 ; types, 100 ; Will, 246 ; work, 223.

Reichenbach, Prof. H. G., works of 219 ; *Otia Botanica Hamburgensia*, 221 ; *Walper's Annales*, 221 ; *Xenia Orchidacea*, 220.

Renanthera Imschootiana, 87 ; trichoglottis, 172.

Reversion, 122.

Ritaia himalaica, 245.

Rolfe, R. A., 122.

Ross Collection of Orchid drawings, 213.

Royal Horticultural Society. 18, 41, 65, 86, 115, 137, 161, 186, 209, 233, 262 ; Exhibitions, 23 ; First Temple Show, 97, 98 ; Preliminary Commendation, 1 ; Red Cross Sale, 2 ; Shows abandoned, 47.

SPRING Shows, 97.

Sander's List of Orchid Hybrids, 96.

Sarcochilus minutiflos, 165.

Sarcopodium, 159.

Sarcopodium acuminatum, 159 ; Lyonii, 159 ; stella-silva, 159.

Satyrium nepalense, 245.

Schiffman, Dr. and Mrs. Rudolph, 214.

Schomburgkia, 49 ; Brysiana, 51 ; campecheana, 51 ; chionodora, 51 ; Humboldtii, 51 ; lepidissima, 51 ; Sanderiana, 51 ; superbiens, 49 ; Thompsoniana, 51 ; tibicinis, 50, 51 ; t. var. grandiflora, 51.

Schomburgkia, species of, 49.
Seeds, quick development of, 52.
Seedlings raised before the War, 248; stray, 217, 218.
Selection, 169.
Selenipedium caudatum, 148; Wallisii, 132.
Self-fertilisation, 28.
Shading, 84.
Sharman, P., Structure of Australian Orchids, 39.
Sobralias, 260.
Sophrocatlælia Anzac var. Vesuvius, 266; Belle, 238; Bryndir, 265; Corona Ansaldo's var., 189; Iris, 68; Meuse, 90, 92; M. var. General Nivelle, 91; Myra, 3; Roehampton, 262.
Sophrocattleya Andromeda, 234; Ashworthiæ, 68; Atalanta, 265; Atreus var. gloriosa, 68; Cassiope, 18; Delta, 21; Fabinippe, 23; Faboris, 237; luminosa, 263; Queen Empress, Low's var., 41; Ramiles, 48.
Sophrocattleya hybrids, 8.
Sophronitis grandiflora, 109, 180, (and colour), 7.
Species, 27, 28; essential characteristics o, of, 122; geographical, 28; how recognisedf 27; in nature, 28; Jordanian, 27; Linnean, 27; Orlgin of, 27, (by crossing), 121, 122; Phantom presentments of, 28; pure, 27; True from seed, 27; What is a species? 26, 27.
Specific purity, test for, 27.
Swinden, Mr. C. W., 24.
Symbiosis, 190.
Systematist and his work, 27.
TELIPOGON, 272.
Thunia Marshalliana, 253.
Thwaites, R. G., Albinism and Colour in Orchids, 6.
Trevoria Chloris, 251.
Trichopilias, 158.
Trinidad Horticultural Club, 2.
Type specimens, 222.
UROPEDIUM Lindenii, 146, 176, 149; hybrids, of, 149.
VANDA Charlesworthii, 167; cœrulea, 110; hastifera, 172; Sanderiana, 122.
Vandas, 62, 259.
Vanilla grandiflora, 255; imperialis, 255; Pompona, 167.
Vanillas of Commerce, 127.
Variation, inheritable, 26, 28: of hybrid Orchids, 52; without crossing, 26, 28.
Varieties, 27; horticultural, 246.
Veitch, Harry J., Orchid Hybridisation, 203.
Veitch, Sir Harry and Lady, 215.
Ventilation, 14, 84, 156.
Vuylsteke, Ch., 122.
Vuylstekeara Colmaniana, 2; insignis, 19.
WATERING, 14, 84, 228.
Wilsonara insignis, 2.
Wrigley, O. O., 71.
ZYGOPETALUM africanum, 182; Mackayi, 261; M. var. Charlesworthii, 40.
Zygopetalums, 16.

LIST OF ILLUSTRATIONS

Aërides Vandarum 64
Angræcum bilobum 9
Angræcum hyaloides 11
Angræcum Sanderianum 10
Bollea Lalindii 56
Bulbophyllum Ericssonii . . . 185
Cattleya Astron The Dell var. . . 256
Cattleya Browniæ 32
Cattleya Fabia var. Sunset . . . 225
Cattleya Lawrenceana 17
Cattleya Mossiæ 105
Cockroaches, a striking scene depicted by George Cruikshank . . . 160
Coryanthes macrocorys 201
Coryanthes maculata var. vitrina . 200
Cycnoches Egertonianum, male and female flowers 153
Cycnoches Egertonianum, Miss Drake's drawing 152
Cycnoches maculatum . . . *Frontispiece*
Cymbidium Winnianum 80
Dendrobium Nestor 81
Dendrobium Phalænopsis 232
Hexadesmia crurigera 128
Læliocattleya Wrigleyi 33
Lycaste Skinneri at Bridge Hall, Bury 112
Marshall, the late William . . . 252
Miltonia Roezlii 129
Miltonia vexillaria Westonbirt var. . 136
Odontoglossum crispum with branched spike 176
Orchid Review and *Orchid Stud-Book* 248
Pescatobollea bella 57
Pleione yunnanensis 88
Zygopetalum Mackayi var. Charlesworthii 40

R. W. SIMPSON & CO., LTD., PRINTERS, RICHMOND AND LONDON.